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UTILITY PATENT APPLICATION TRANSMITTAL

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Attorney Docket No.	004346.P001X
First Inventor or Application Identifier	Elliot A. Gottfurcht
Title	AN APPARATUS AND METHOD FOR SIMPLE WIDE-AREA NETWORK
Express Mail Label No.	EM522829376US

jc759 U.S. PTO 03/03/00

jc525 U.S. PTO 09/518015 03/03/00

APPLICATION ELEMENTS

See MPEP chapter 600 concerning utility patent application contents

ADDRESS TO: Assistant Commissioner for Patents
Box Patent Application
Washington, DC 20231

1. [X] Fee Transmittal Form *(e.g. PTO/SB/17)*
(Submit an original, and a duplicate for fee processing)

2. [X] Specification *Total Pages* 28
(preferred arrangement set forth below)
- Descriptive title of the Invention
- Cross References to Related Applications
- Statement Regarding Fed sponsored R & D
- Reference to Microfiche Appendix
- Background of the Invention
- Brief Summary of the Invention
- Brief Description of the Drawings *(if filed)*
- Detailed Description
- Claim(s)
- Abstract of the Disclosure

3. [X] Drawing(s) *(35 U.S.C.113)* *Total Sheets* 28

4. Oath or Declaration *Total Pages* 3
a. [X] Newly executed (original copy)
b. [ ] Copy from a prior application (37 CFR 1.63(d))
(for continuation/divisional with Box 16 completed)
i. [ ] DELETION OF INVENTOR(S)
Signed statement attached deleting inventor(s) named in the prior application, see 37 CFR 1.63(d)(2) and 1.33(b).

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5. [ ] Microfiche Computer Program *(Appendix)*

6. Nucleotide and/or Amino Acid Sequence Submission *(if applicable, all necessary)*
a. [ ] Computer Readable Copy
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ACCOMPANYING APPLICATION PARTS

7. [X] Assignment Papers (cover sheet & document(s))
8. [ ] 37 CFR 3.73(b) Statement *(when there is an assignee)* [ ] Power of Attorney
9. [ ] English Translation Document *(if applicable)*
10. [ ] Information Disclosure Statement (IDS)/PTO - 1449 [ ] Copies of IDS Citations
11. [ ] Preliminary Amendment
12. [X] Return Receipt Postcard (MPEP 503)
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13. [X] *Small Entity Statement(s) [ ] Statement filed in prior application, Status still proper and desired
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[ ] Continuation [ ] Divisional [X] Continuation-in-part (CIP) of prior application No: 09 / 440,214
Prior application Information: Examiner Not Assigned *Group/Art Unit:* 2756
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APPLICANT OR PATENTEE: Elliot A. Gottfurcht, Grant E. Gottfurcht, and Albert-Michel C. Long OUR REF NO: 004346.P001X

SERIAL OR PATENT NO.: _____ FILED/ISSUE DATE: _____

FOR: AN APPARATUS AND METHOD FOR SIMPLE WIDE-AREA NETWORK NAVIGATION

VERIFIED STATEMENT (DECLARATION) CLAIMING SMALL ENTITY STATUS 37 CFR 1.9(f) AND 1.27(b) - INDEPENDENT INVENTOR

As a below named inventor, I hereby declare that I qualify as an independent inventor as defined in 37 CFR 1.9(c) for purposes of paying reduced fees under section 41(a) and (b) of Title 35, United States Code, to the Patent and Trademark Office with regard to the invention entitled **AN APPARATUS AND METHOD FOR SIMPLE WIDE-AREA NETWORK NAVIGATION**
described in

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I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under §1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

Elliot A. Gottfurcht		
NAME OF INVENTOR	NAME OF INVENTOR	NAME OF INVENTOR
[signature]		
Signature of Inventor	Signature of Inventor	Signature of Inventor
2-3-00		
DATE	DATE	DATE

APPLICANT OR PATENTEE: Elliot A. Gottfurcht, Grant E. Gottfurcht, and Albert-Michel C. Long OUR REF NO: 004346.P001X

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I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under §1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

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03/03/00	03/03/00	
DATE	DATE	DATE

09518015.030300

Docket No.: 004346.P001X
Express Mail No.: EM522829376US

UNITED STATES PATENT APPLICATION

FOR

AN APPARATUS AND METHOD FOR SIMPLE WIDE-AREA NETWORK NAVIGATION

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This is a continuation-in-part of Serial No. 09/440,214, entitled AN APPARATUS AND METHOD FOR SIMPLE WIDE-AREA NETWORK NAVIGATION, filed November 15, 1999.

BACKGROUND

(1) Field of the Invention

The invention relates to electronic information services and electronic commerce services. More specifically, the invention relates to providing easy navigation to facilitate access to such services and improved web access through a television display, internet appliance, and wireless devices.

(2) Background

The importance of the Internet as a tool of electronic commerce can not be overstated. The ability of consumers to buy products, obtain information from the comfort of their own home is revolutionizing the way business is done. Increasingly, there is a push to provide access to the Internet on standard television monitors through the use of set top boxes. Over time, much like cable-ready televisions, it is expected that Internet-ready televisions will proliferate. Unfortunately, even on large screen televisions the web surfing experience is poor, inasmuch as the web content is illegible and/or unnegotiable, unless you happen to be sitting very close to the television. Generally, this makes web surfing impractical in more traditional television environments. As the television web access systems proliferate, improved navigation and content access on the television is likely to become a necessity.

BRIEF SUMMARY OF THE INVENTION

A method and apparatus of simplified navigation is disclosed. A web page is provided having a link to a sister site. The sister site facilitates simplified navigation. Pages from the sister site are served responsive to actuation of the sister site link. In one embodiment, the sister site includes matrix pages to permit matrix navigation.

Express Mail No. EM522829376US Date of Deposit: May 25, 2001

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is a block diagram of a system employing one embodiment of the invention.

Figure 2a is an exemplary web page having a sister site link.

Figure 2b is an exemplary first matrix page of a sister site for the web page of Figure 2a.

Figure 2c is a web page having irregular segmentation.

Figure 3 is a flow diagram of conversion of standard HTML pages to a sister site format in one embodiment of the invention.

Figure 4 is a block diagram of a client hardware architecture of one embodiment of the invention.

Figure 5a is a flow diagram of server side segmentation in one embodiment of the invention.

Figure 5b is a flow diagram of client side manipulation of a segmented page in one embodiment of the invention.

Figure 5c is a diagram showing a system implementing the tab, scroll, and zoom features of one embodiment of the invention.

Figure 6 is a flow chart of operations of the navigation system of one embodiment of the invention in a custom terminal custom browser node.

Figure 7 is a flow diagram of operation of the sister site server of one embodiment of the invention.

Figure 8 is a diagram of the display of a graphical user interface of one embodiment of the invention.

Figure 9a-d are examples of sister site matrix pages.

Figures 10a-g are a series of matrix layers displayed during an exemplary navigation using one embodiment of the invention.

Figure 11 shows a history window overlying a navigation matrix layer.

Figures 12a and b are an example of a matrix layer of one embodiment of the invention.

Figure 13 is an e-mail composition matrix layer for one embodiment of the invention.

Figure 14 shows an alternative matrix page of one embodiment of the invention.

DETAILED DESCRIPTION

A simplified system for navigation of the Internet or other content source allows access to the content and services available thereon with greater ease, on, for example, a display more remote from a user than in the use of the "traditional" personal computer (PC) two foot paradigm.

Figure 1 is a block diagram of a system employing one embodiment of the invention. A wide-area network (WAN) 10, such as the Internet, couples together a plurality of communication nodes. Some nodes, such as node 12, may be a standard prior art PC executing any conventional web browser. Alternatively, node 12 might be a set top box and television, or an internet appliance, or a wireless device, such as a web-enabled cell phone. Additionally, there are server nodes connected to WAN 10, such as server node 16, which may be any conventional web server. Also coupled to WAN 10 are browser nodes 22 running a custom browser that facilitate access to information and services provided to the custom browser node 22. The custom browser node 22 as well as any browser nodes 12 are collectively referred to as client nodes. Content partners, such as content partner node 14 provide content in a specified format that facilitates its use by the client nodes 12, 22. In one embodiment, when a user accesses a content partner home page, they have the option of linking to a sister site. As used herein, "sister site" is deemed to mean a site that provides for navigation of the site using a simplified navigation system, such as matrix navigation described in more detail below. In one embodiment, the sister site is traditional HTML pages converted to a matrix format to permit matrix

navigation. This conversion may be done using an XML transcoding or any other suitable language.

Content partners may maintain a database of sister site web pages corresponding to the pages in the general use site. Alternatively, content partners may provide a facility for converting web pages on the fly to the sister site format. Content partners may also provide for segmentation of the base HTML web pages and/or the matrix pages. A segmentation may be performed in a number of ways. The page may be divided up based on content or area. The net result, in any case, is that the web page is divided into regions which are not necessarily, but may be, of equal size. The individual regions may be brought into focus independently. By "brought into focus," the concept of focus in this context is analogous to the front window in a windowing system. The focus region is deemed active and subject to client manipulation. In the context of a matrix page, one suitable segmentation is by cell, e.g., each cell corresponds to a region that may be independently brought into focus. The borders of the regions may or may not be visible on the web pages displayed. This segmentation facilitates tab, scroll, and zoom features described in more detail below. Alternatively, segmentation may be performed as part of a custom browser on custom browser nodes or may be instantiated as a hardware or firmware solution within, for example, the set top box.

Figure 2a is an exemplary web page having a sister site link. By actuating the link, the client begins receiving matrix pages as described in more detail below. **Figure 2b** shows an example first matrix page reached by activating the sister site link in Figure 2a. **Figure 2c** is a web page having irregular segmentation. Through

segmentation, the page is divided into regions. Individual regions may then be brought into focus permitting simplified navigation, viewing, and manipulation of the data within that region.

Figure 3 is a flow diagram of conversion of standard HTML pages to a sister site format in one embodiment of the invention. A hypertext markup language (HTML) page 40 is transcoded by a transcoder 30 to yield, for example, an XML page 42 to which a document type definition (DTD) 38 is applied. The DTD 38 specifies the rules for the structure of the resulting XML document. The XML page is then reformatted using extensible style language (XSL) 34 to corresponding format data 32. XSL is not currently supported by all standard browsers. Thus, after formatting, the XML document is translated to an extensible hypertext markup language (XHTML) document for subsequent display by a client side browser on display 52. Alternatively, the XML page may have a cascading style sheet (CSS) applied to achieve the desired format. One advantage of the CSS is that it is supported by standard browsers. After application of the CSS, the resulting formatted page can be displayed by the client browser on display 52.

The above-described conversion may be done by a content partner in advance of request for pages or may be done on the fly responsive to requests for pages. The determination of which to do involves a trade off between latency in providing requested pages and storage space required to store the additional pages. Some on the fly conversion is desirable in the event that a user attempts to access a web site that has not previously been converted. It is also within the scope and contemplation of providing for conversion on the client side.

Figure 4 is a block diagram of a client hardware architecture of one embodiment of the invention. A processor 100 is coupled to various memory units and an I/O bus bridge 110 by a local bus 102. Among the expected memory units are random access memory (RAM) 106, which may be any standard RAM, including standard dynamic random access memory (DRAM), and may be symmetric or asymmetric. Also coupled to bus 102 is a read-only memory (ROM) unit 108. The ROM will typically include the boot code for the processor 100. A non-volatile RAM (NVRAM) unit 104 is also coupled to the bus.

The I/O bus bridge 110 is coupled to the local bus 102 and bridges to the I/O bus 112. A number of units may reside on the I/O bus, including a graphics module 114 that couples to a display (not shown), a universal serial bus (USB) controller that may couple the system to any number of additional USB devices. Common USB devices include keyboards, mice, cameras, scanners, printers, and other peripheral components and input/output devices. Also coupled to the I/O bus may be power management module 118, which may be coupled to the power switch and may include conventional power conservation protocols, ensuring the processor 100 is permitted to orderly conclude its current operation before changing power states.

An infrared data association (IrDA) interface 120 permits the terminal to be coupled to hand-held devices, if desired. In some embodiments, a keyboard may be coupled by an Ir link. Storage unit 122, which may, for example, be a flash memory unit, is used for long-term storage of data or files. A transceiver 124 is used to permit the processor to communicate with the hub, whether it be a point-to-point link or across a wide-area network. The transceiver 124 may be, but is not limited to,

an ethernet transceiver, a modem, digital subscriber line (DSL) or cable modem. It is expected that the processor 100 will communicate through the transceiver 124 to the server using transmission control protocol/internet protocol (TCP/IP). Encryption and compression within the terminal may be handled by conventional hardware or software solutions.

Audio I/O interface 126 may include an internal microphone and speaker which permits audio input and output. This is particularly useful in the context of voice e-mail or voice over IP communications. Additionally, some embodiments of the invention will include speech to text (STT) capability 130 and speech recognition (SR) capability 136. Various embodiments may implement these capabilities as hardware or software or a combination of both. In embodiments having SR capability, for simplicity of use, it is desirable to use one of the multiple user SR packages available today and expected to improve in the future, as these packages avoid the necessity of "training" the system. This permits recognition of content of speech and conversion to text.

For purposes of reduced cost, it may be desirable to use a particularly simple speech recognition package, recognizing only, for example, numbers and letters. A suitable speech recognition package will permit a user to navigate the WAN as subsequently described using voice commands and composed e-mails in a hands-free manner. Such an embodiment has the additional advantage that it enables Internet access to the physically challenged. In some embodiments, SR 136 is present, but STT 130 is not. This may permit the processor to respond to voice commands but would not permit composition of e-mail, for example.

In one embodiment of the invention, the terminal has a notebook form factor with an integrated LCD display. In an alternative embodiment, the form factor is a set-top box, which relies on an external display, such as a television or external monitor. In either case, a standard QWERTY keyboard could be used. In the set top box embodiment, a wireless keyboard or remote is desirable.

Figure 5a is a flow diagram of server side segmentation in one embodiment of the invention. A request for a page is received at functional block 400. A determination is made at decision block 402 whether the requested page has been segmented. If the page has not been segmented, a determination is made at decision block 404 whether the requested page is a matrix page. If the requested page is a matrix page, at functional block 406, the cells of the matrix are each defined to be a region, thereby completing the segmentation. If the page is not a matrix page, the page is segmented either based on area or content. By "segmentation," it is meant that the page is divided into a plurality of regions. The regions may contain one or more links and/or some amount of content. This segmentation facilitates usability as discussed in more detail below. Once segmentation is complete, at functional block 408, a determination is made if the boundaries of the regions should be shown on the displayed page at decision block 410. If the boundaries are to be shown, the boundaries are overlayed on the page at functional block 412 after the overlay, or if no boundaries are to be shown, the page is sent to the client node at functional block 414.

Figure 5b is a flow diagram of client side manipulation of a segmented page in one embodiment of the invention. At functional block 450, a segmented page is

received at a client node. A determination is made at decision block 452 if a tab input has been received. As used herein, a tab input is any input which brings about the functionality of moving the focus from one region to another adjacent region. If no tab input has been received, a determination is made at decision block 454 if the regions have identifying symbols associated therewith. Particularly in the case of matrix pages, the different cells typically have associated therewith either an alphanumeric character or some symbol such as an asterisk or other punctuation mark to identify the cell. If there are identifications associated with the regions, a determination is made at decision block 456 if such an identification has been received as an input on the client node. If the identification has been received, the corresponding region is brought into focus. The focus region is active, and in some embodiments, the corresponding region is zoomed to increase its size relative to the inactive regions at functional block 460. If no identifications are associated with the region or no identification is received, the client waits for a tab input at decision block 452.

If a tab input is received, the next region is brought into focus. If no region is currently in focus, a first region, e.g., the uppermost leftmost region, will be brought into focus at functional block 458. At functional block 462, the regions are scaled so that the in focus region is enlarged relative to the regions which are not in focus. This is particularly desirable for web browsing in a television context where distance from the set may make reading the unscaled page difficult or impossible. Thus, by scaling region by region, readability within the region can be enhanced to permit use and browsing from a distance.

At functional block 464, a first link in the focus region is highlighted. As used herein, "highlighted" means made active such that a subsequent input, such as a predefined key press activates the link. Highlighting in the link context is analogous to focus in the region context. Highlighting may, but need not include, changing the link's appearance in any manner on the display such as, for example, changing size, color, shading, etc. A determination is made at decision block 466 if an enter signal has been received. However, if no enter signal has been received, a determination is made at decision block 468 if a scroll signal has been input at the client node. If a scroll signal has been input, a next link is highlighted at functional block 472. If an enter signal is received at functional block 466, a then highlighted link is activated at functional block 474 and a next segmented page is received, and the process begins again. Alternatively, if no scroll signal input is received at decision block 468, a determination is made at decision block 470 whether a tab or identification input has occurred. If it has, the system continues processing at blocks 458 or 460, respectively.

Figure 5c is a diagram showing a system implementing the tab, scroll, and zoom features of one embodiment of the invention. A set top box 500 is coupled to a television monitor 502 and is responsive to remote control 504. Remote control 504 may be a custom remote control, a wireless keyboard, or even a standard universal remote control. Remote control 504 may be equipped with a microphone for accepting voice commands or may merely provide push button inputs. In frame one, television 502 is displaying a web page 510 that has been segmented into eight equally dimensioned regions A-H. Remote control 504 includes a tab function 520, a

scroll function 522, and an enter function 524. Responsive to actuation of the tab function, region A is brought into focus, as shown in the second frame. Link one is highlighted and A is enlarged, while the remaining regions are scaled so that A is much larger relative to the other regions, thereby accomplishing a zoom function and improving readability of the information contained in region A. This is shown as web page 512. If, when A is in focus, the user actuates scroll function 522, a second link in region A is highlighted as shown on page 514. In one embodiment, scrolling within the focus region does not effect the size or representation of the non-focus regions. In the event that, at web page 512 or web page 514, the enter function 524 is actuated, $link_1$ or $link_2$ would be traversed, respectively. If the segments are actually associated with their alphanumeric designator, and that remote control 504 has alphanumeric keys, for example, letter key F 526, web page 516 shows a web page that would be reached from web page 510, 512, or 514 responsive to actuation of the F key. In web page 516, the F region is in focus, and the remaining regions are scaled to be much smaller than the F region.

These are merely illustrative examples of the tab, scroll, and zoom features of one embodiment of the invention. While the shown embodiment tiles the regions, it is within the scope and contemplation of the invention to overlay the focus region on one or more of the other regions. It is also within the scope of the invention to permit a user to increase the zoom of the focus region to exceed the physical space. In such case, scrolling within the region may be required to view the entire contents of the region. Such scrolling need not effect the display of the non-focused regions.

Figure 6 is a flow chart of operations of the navigation system of one embodiment of the invention in a custom terminal custom browser node. Upon power-up at functional block 602, a content partners home page is accessed. In some embodiments, it may be possible to bypass access of the home page and go directly to the sister site home page. At functional block 604, a node establishes communication with a sister site server (SSS). At functional block 605, a first matrix layer is received from the SSS. At decision block 606, the node waits for a keypress. If at decision block 606, a determination is made that a key has been pressed, a determination is made at decision block 607 whether the keypress corresponds to a composition cell. A composition cell is deemed to be a cell in the navigation matrix which permits a user to enter additional data. For example, a search cell or e.g., a purchase order form or an e-mail may have one or more composition cells. If the cell is a composition cell, the system enters composition mode at functional block 632. In composition mode, the digits of the keypad represent the digits themselves, rather than navigation options. The cursor will also appear in the composition field of the composition cell. At decision block 634, a determination is made if the enter key has been pressed. The enter key is defined in one embodiment of the invention to signify the end of a composition. Thus, if the enter key has not been pressed, the system remains in composition mode. However, if at decision block 634, the enter key has been pressed, the system returns to navigation mode at functional block 636. It is also within the scope and contemplation to define other keys to instigate return to the navigation mode.

If a keypress is received and not found to correspond to a composition cell at decision block 607, a determination is made at decision block 608 whether the matrix layer corresponding to the keypress exists within the cache. In this connection, it is determined whether a representation of that matrix layer, even if in the cache, is stale and therefore needs to be freshly downloaded. If the data is stale or not present in the cache at all, the keypress event is sent to the SSS. In one embodiment, the entire navigation path, including the keypress event, is sent with each keypress. When the navigation path is sent with each keypress event, the SSS is able to identify the requested matrix layer rapidly on the fly.

Subsequently, at functional block 612, the client node receives the updated matrix layer corresponding to the keypress event. That matrix layer is loaded to the memory at functional block 614 and the cache is time-stamped at functional block 616. At functional block 618, new ads may be received from the SSS. Notably, the receipt of the ads is asynchronous with the matrix layer receipt and may occur at any time without being prompted by a keypress event. At functional block 620, the incoming matrix layer is rendered to a temporary buffer by using a double-buffering technique. The actual rendering is transparent to the user. At functional block 622, the status bar for the load is updated to indicate the percent complete of the matrix layer rendering. At functional block 624, a determination is made if the rendering is complete. If it is not, the buffer continues to render and the status bar continues to update. By regularly updating the status bar, the user is not left wondering if the device is working. This is expected to limit the frustration experienced by many new users during the wait while matrix layers are rendered. If the rendering is

complete, the temporary buffer is swapped with the frame buffer and the new matrix layer is displayed at functional block 626. Then at functional block 628, the history of the navigation path is updated to reflect the new matrix layer. The system then returns to await a next keypress to indicate further navigation. By iteratively pressing appropriate keys, a user may navigate to any desired depth up to a maximum depth along any navigation path and obtain content relevant to the path navigated. If instead, the matrix layer was validly in the cache at decision block 608, the matrix layer is rendered from the cache at functional block 630 and the system awaits the next keypress.

"Maximum depth" as used herein applies on a cell by cell basis for primary navigation options. A maximum depth is reached for a cell in a navigation path when pressing a corresponding key will not take a user to a deeper matrix layer in the matrix. While content, as distinguished from the matrix layer and their cell headings, will be displayed once a maximum depth is reached, it is within the scope and contemplation of the invention to display some content in cells of an intermediate matrix layer, i.e. one that is not at the maximum depth.

"Primary navigation options" as used herein are those navigation options that necessarily change between successive matrix layers, changing from general to more specific with increases in depth in the matrix.

Figure 7 is a flow diagram of operation of the sister site server of one embodiment of the invention. A determination is made if the keypress event has been received at decision block 702. If the keypress event has been received, a determination is made if the matrix has reached maximum depth at decision block

704. If the matrix has not reached the maximum depth, a matrix layer corresponding to the keypress is sent at functional block 706. Such matrix layers may or may not include content in cells with navigation choices. If the matrix has reached maximum depth for that navigation path, a content layer corresponding to the keypress event is sent to the client node at functional block 708. A content layer may or may not include matrix cells in addition to the content. New ads are sent to the client node at functional block 710. The system then awaits the next keypress event from a client node.

Figure 8 is a diagram of the display of a graphical user interface of one embodiment of the invention. The screen is divided into a plurality of cells. In this embodiment, there are fifteen cells that represent navigation options and one messaging cell for displaying messages from the server, the progress or status bar, and a title block. The cells can further be subdivided between the digit keys 1-9 keys which, in this embodiment, represent the primary set of navigation options and the keys designated by letters A-C which represent secondary navigation options and *, 0, and # keys that may be additional navigation options or provide specialized functions. For example, the * key may return the user to the server home site, thereby leaving matrix navigation. The ABC cells will typically hold advertising, and selecting one of those cells will generate a matrix layer with primary navigation cells directed to that advertiser or the product line being advertised. While the interface is designed to be fully accessible with minimal key strokes from a key pad, it is also within the scope and contemplation of the invention to permit selection with a mouse or other pointer device.

Figures 9a-d are example sister site matrix pages. In **Figure 9a**, an advertising cell 900 is the focus region of the displayed image. Ten advertisements are displayed within the regions. The first advertisement 902 is highlighted. From this matrix page, the * returns a user to the amazon.com home page. The # reveals the contents of a user's shopping cart. In **Figure 9b**, the contents of the focus window have been enlarged (zoomed) such that only four advertisements are displayed in ad cell 900. The no links/advertisements are highlighted. In **Figure 9c**, advertisement 902 is again highlighted. This may occur, for example, by a user pressing a scroll key from Figure 9b. In **Figure 9d**, a user has pressed a scroll key several times from Figure 9c. Thus, advertisement 902 has scrolled out of view and advertisement 904 is highlighted. While in this example, ten advertisements were present, the number of links within such a cell may be arbitrarily large. In the shown embodiment, scrolling through the links in the focus cell and scaling the focus cell content does not effect the user's view of the remaining cells.

Figures 10a-g are a series of matrix layers displayed during an exemplary navigation using one embodiment of the invention. In this example, navigation begins at the Shopping and Products matrix layer and shown in Figure 10a. A selection of 5 on the 10a matrix layer yields an Electronics matrix layer shown in Figure 10b.

Selecting 1 on the keypad when the matrix layer of 10b is displayed yields the Audio matrix layer of Figure 10c. By selecting an 8 on the keypad when 10c is displayed, the system displays a Receivers matrix layer of Figure 10d, which breaks down receivers into price categories and also provides the option of navigating, in

this embodiment, into Consumer Reports industry reports related to receivers. Notably, in Figure 10d, the number of primary navigation options is reduced to 4. Thus, it is not necessary that all layers of the matrix have the same number of cells, nor is it required that all cells have the same size. A user can select Stereo Only by pressing 1 on the keypad, which yields a stereo only matrix layer shown in Figure 10e.

In one embodiment of the invention, the products are ordered based on some ranking system, such as Consumer Reports. Thus, for example, in Figure 10e, Technics received the highest ranking of receivers in the selected category from Consumer Reports. It is expected that for any particular product class, potential purchasers are likely to only be interested in the top several products within that class, not for example, the 15th best receiver in the $150-$290 range. However, it is within the scope and contemplation of the invention to permit a "more" option which allows a user to get a set of the next most highly ranked products and possibly unranked products as well. It is expected that supplying product options in a user-friendly ranked order will encourage users to be more willing to conduct e-commerce.

By selecting a 1 on the keypad when matrix layer 10e is displayed, a user reaches the matrix layer of Figure 10f, as well as reaching the maximum depth for that navigation path. Thus, pressing 1 on the keypad in response to matrix layer 10f does not move the user deeper into the multi-dimensional matrix, and content is displayed in cell 1 indicating the model, price, picture, and possibly other information about the Technics product. Cell 1 is also larger than the other cells.

Other navigation options are provided in additional matrix cells surrounding cell 1 and its content. The additional cells represent navigation paths that have not reached their maximum depth. For example, by pressing a 3, one would get to a features of the Technics product content layer. Such screen would display features of the Technics system. The various navigation paths typically have a maximum depth at which content is displayed. However, reaching the maximum depth of a particular navigation path does not indicate that another navigation path may not have yet a deeper matrix layer. For example, while the maximum depth of the navigation path corresponded to cell 1 has been reach in Figure 10f, selecting a 9 on the keypad will move a user to a Technics purchase matrix layer, shown in Figure 10g. By selecting digits on the keypad, a user can move between fields to fill out a purchase form which, as discussed above, is one example of a matrix layer including composition cells. In some embodiments, the form can be filled in using keyboard input. In other embodiments, the speech to text capabilities of the terminal will permit the user to fill out the electronic purchase form orally.

Figure 11 shows a history window overlying a navigation matrix. The history window would appear if the history button on the keypad were actuated. By using the up/down arrow key on the keypad, the user may then select a prior matrix to jump to directly without moving backwards or forwards iteratively.

Figures 12a and b are an example matrix after a selection of 0 from the main menu screen, which allows one to conduct a search through cell 1. On this figure, advertisements for Jaguar appear in the ABC cells. In one embodiment of the invention, the ABC designation appears initially (as shown in Figure 12a)when the

screen is first refreshed and then fades away to reveal solely the advertisement in each of those cells (as shown in Figure 12b). In this example, pressing an A on the keypad would take the user to a matrix reflecting company information about Jaguar. Pressing B would take the user to a matrix for the virtual showroom, and C would take the user to a purchase screen for the advertised item.

In some cases, the advertising cells are merged as a single cell showing a single advertisement and permitting navigation to only a single matrix layer therefrom. In one embodiment, the background can be an advertisement. This is also shown in Figures 12a and b. Significantly, the advertisement can be targeted by modifying the ad responsive to the apparent navigation path of the user. This leaves the potential of showing the user an advertisement for a product or service more likely to be of interest. For example, when a user selects Electronics in the example of Figures 10a-g, the next screen may have as background an advertisement, e.g. for Circuit City.

Figure 13 shows the e-mail creation screen for one embodiment of the invention. This would be reached by pressing 3 on the keypad when the matrix layer of Figure 9d is displayed. Again, all e-mail functions other than actually entering the text and the address can be performed using the simple interface with numerical digits and the letters ABC corresponding to inbox, the outbox, and the sent features of standard e-mail, respectively.

Figure 14 shows an alternative matrix page of one embodiment of the invention. In this embodiment, the matrix occupies only a portion of the screen

real estate. The remaining real estate may be occupied by content, a zoom of the focus cell, or advertising.

In the foregoing specification, the invention has been described with reference to specific embodiments thereof. It will, however, be evident that various modifications and changes can be made thereto without departing from the broader spirit and scope of the invention as set forth in the appended claims. The specification and drawings are, accordingly, to be regarded in an illustrative rather than a restrictive sense. Therefore, the scope of the invention should be limited only by the appended claims.

Docket No.: 004346.P001X

Express Mail No.: EM522829376US

CLAIMS

What is claimed is:

1. A method comprising:

providing a web page having a link to a sister site that permits simplified navigation; and

serving pages from the sister site responsive to actuation of the link on the web page.

2. The method of claim 1 wherein the sister site employs matrix navigation, the method further comprising:

accepting an alpha numeric indication of a navigation option to be followed; and

serving a matrix layer corresponding to the navigation option.

3. The method of claim 1 further comprising:

transcoding a hyper text markup language (HTML) page into an extensible markup language (XML) page; and

applying a document type definition (DTD) to the XML page.

4. The method of claim 3 further comprising:

formatting the XML page using extensible style language (XSL); and

transforming the formatted page into one of extensible hyper text markup language (XHTML) and HTML.

5. The method of claim 3 further comprising:

applying a cascading style sheet (CSS) to the XML page.

6. A computer readable storage media containing executable computer program instructions which when executed cause a digital processing system to perform a method comprising:

providing a web page having a link to a sister site that permits simplified navigation; and

serving pages from the sister site responsive to actuation of the link on the web page.

7. The computer readable storage media of claim 6 which when executed cause a digital processing system to perform a method further comprising:

accepting an alpha numeric indication of a navigation option to be followed; and

serving a matrix layer corresponding to the navigation option.

8. The computer readable storage media of claim 6 which when executed cause a digital processing system to perform a method further comprising:

transcoding a hyper text markup language (HTML) page into an extensible markup language (XML) page; and

applying a document type definition (DTD) to the XML page.

9. The computer readable storage media of claim 8 which when executed cause a digital processing system to perform a method further comprising:

formatting the XML page using extensible style language (XSL); and

transforming the formatted page into one of extensible hyper text markup language (XHTML) and HTML.

10. The computer readable storage media of claim 8 which when executed cause a digital processing system to perform a method further comprising:

applying a cascading style sheet (CSS) to the XML page.

11. A method comprising:

segmenting a displayable image into a plurality of regions; and

moving algorithmically from region to region responsive to a tab signal.

12. The method of claim 11 further comprising:

enlarging a focus region as displayed.

13. The method of claim 11 further comprising:

highlighting a next adjacent link within a focus region responsive to a scroll signal.

14. The method of claim 11 wherein boundaries of the plurality of regions are not displayed.

15. The method of claim 12 further comprising:

scaling a subset of non-focus regions to be displayed.

16. The method of claim 11 further comprising:

associating a region with an identifying symbol.

17. The method of claim 16 wherein the web page is a matrix layer and the regions are matrix cells.

18. The method of claim 16 further comprising:

receiving a signal corresponding to the symbol; and

causing the region corresponding to the symbol to be a focus region.

19. The method of claim 11 further comprising:

highlighting a link within a current region.

20. The method of claim 11 further comprising:

highlighting a link within a current region.

21. A method comprising:

defining a tab signal;

defining a scroll signal;

moving a focus between regions of a page responsive to the tab signal; and

highlighting links in a sequential manner within a focus region responsive to the scroll signal.

22. The method of claim 21 further comprising:

enlarging the focus region relative to non-focus regions on the page.

ABSTRACT

A method and apparatus of simplified navigation. A web page is provided having a link to a sister site. The sister site facilitates simplified navigation. Pages from the sister site are served responsive to actuation of the sister site link. In one embodiment, the sister site includes matrix pages to permit matrix navigation.

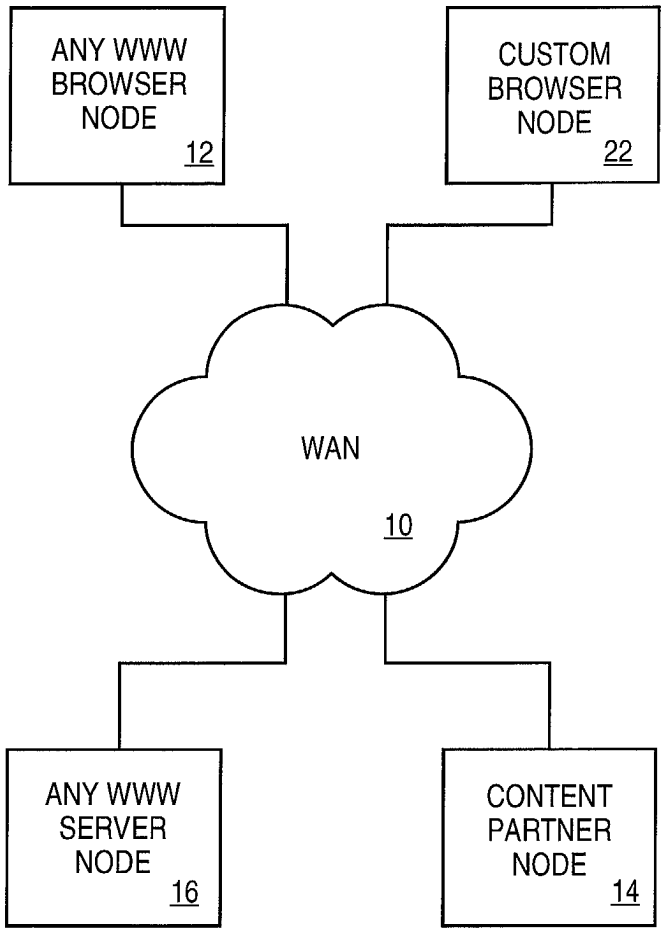
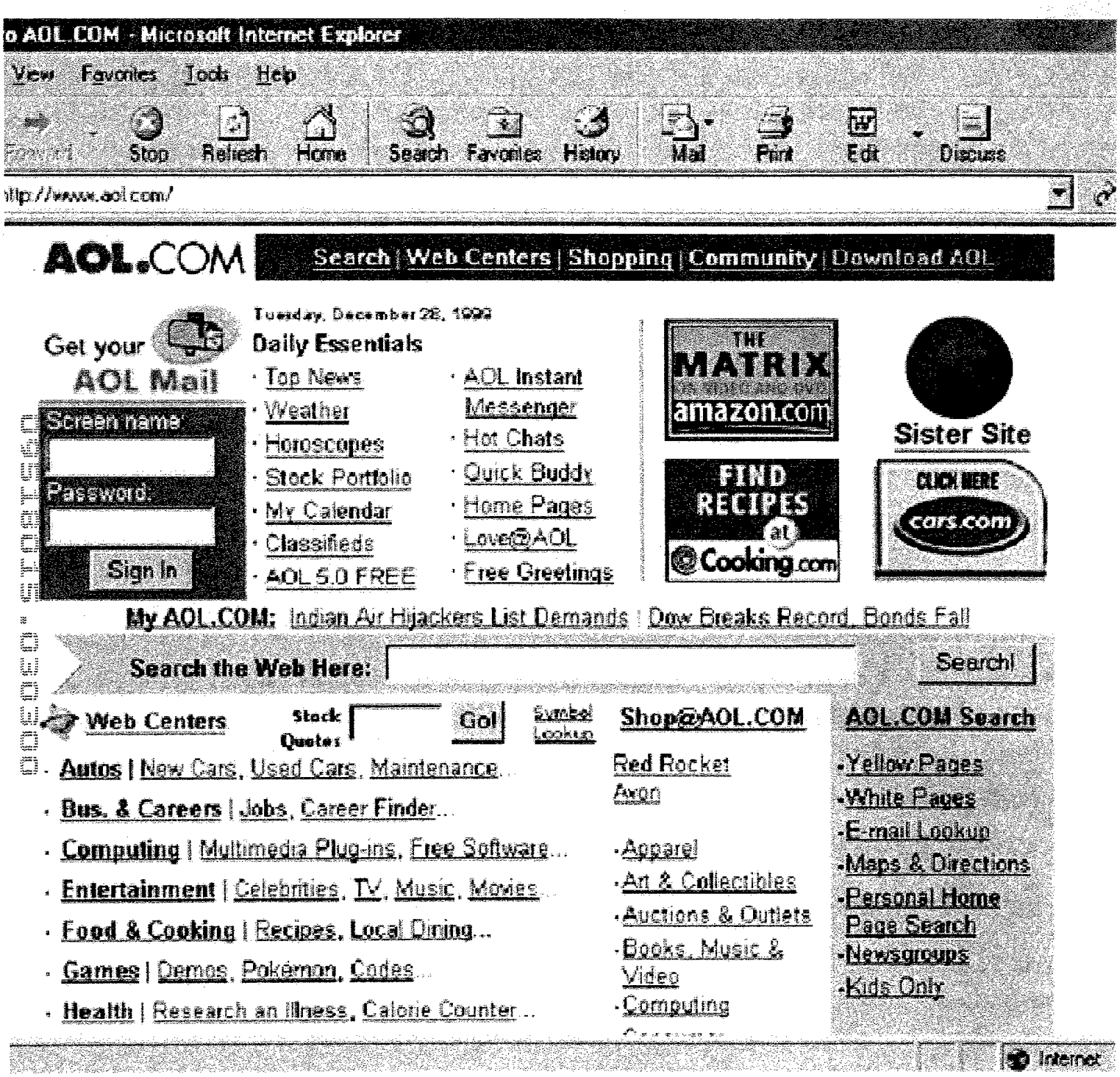


FIG. 1

09512015 .030300


o AOL.COM - Microsoft Internet Explorer
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Forward Stop Refresh Home Search Favorites History Mail Print Edit Discuss
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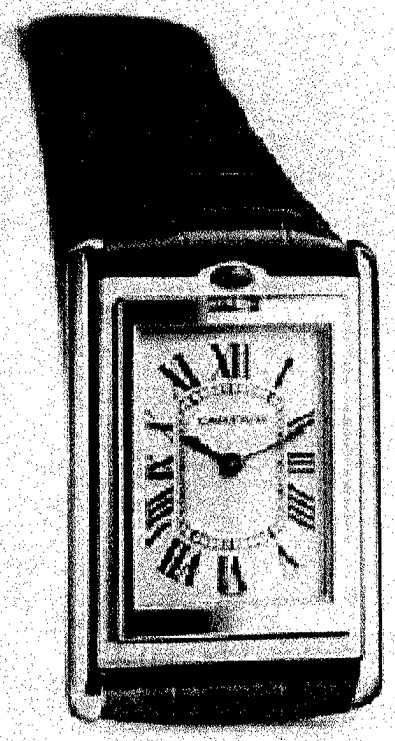
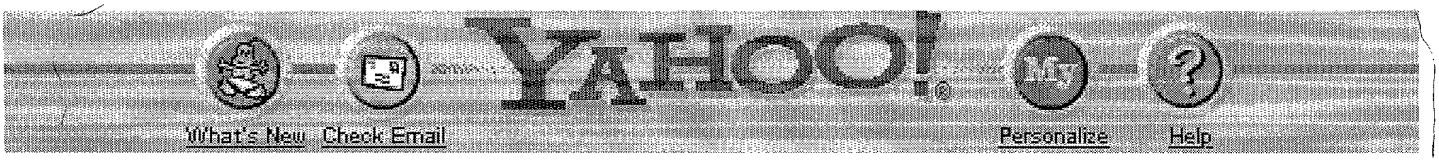
Quick Buddy
Home Pages
Love@AOL
Free Greetings
Screen name:
Password:
Sign In
THE MATRIX
amazon.com
FIND RECIPES at Cooking.com
Sister Site
CLICK HERE
cars.com
My AOL.COM: Indian Air Hijackers List Demands | Dow Breaks Record, Bonds Fall
Search the Web Here:
Search!
Web Centers
Stock Quotes:
Go!
Symbol Lookup
Autos | New Cars, Used Cars, Maintenance...
Bus. & Careers | Jobs, Career Finder...
Computing | Multimedia Plug-ins, Free Software...
Entertainment | Celebrities, TV, Music, Movies...
Food & Cooking | Recipes, Local Dining...
Games | Demos, Pokemon, Codes...
Health | Research an Illness, Calorie Counter...
Shop@AOL.COM
Red Rocket
Avon
Apparel
Art & Collectibles
Auctions & Outlets
Books, Music & Video
Computing
AOL.COM Search
Yellow Pages
White Pages
E-mail Lookup
Maps & Directions
Personal Home Page Search
Newsgroups
Kids Only
Internet

Fig 2A

FIG 2b

Channels	Shopping	Favorites	
Essentials	My AOL	My Files	
People	Quotes	Calendar	
AOL Home	Mail Center	Search	AOL.COM Sister Site

09518015 .030300



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[ ]

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Search advanced search

Shopping - **Auctions** - Yellow Pages - People Search - Maps - Travel - Classifieds - Personals - Games - Chat - **Clubs**
Mail - Calendar - Messenger - **Companion** - My Yahoo! - News - Sports - Weather - TV - Stock Quotes - more...

Yahoo! Shopping - Thousands of stores. Millions of products.

Departments		Stores	Products
· Apparel	· Flowers	· Toys R Us	· Digital cameras
· Bath/Beauty	· Food/Drink	· Gap	· Pokemon
· Computers	· Music	· Vermont Teddy Bear	· MP3 players
· Electronics	· Video/DVD	· Macy's	· DVD players

Arts & Humanities
Literature, Photography...

Business & Economy
Companies, Finance, Jobs...

Computers & Internet
Internet, WWW, Software, Games...

Education
College and University, K-12...

Entertainment
Cool Links, Movies, Humor, Music...

Government
Elections, Military, Law, Taxes...

Health
Medicine, Diseases, Drugs, Fitness...

News & Media
Full Coverage, Newspapers, TV...

Recreation & Sports
Sports, Travel, Autos, Outdoors...

Reference
Libraries, Dictionaries, Quotations...

Regional
Countries, Regions, US States...

Science
Animals, Astronomy, Engineering...

Social Science
Archaeology, Economics, Languages...

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People, Environment, Religion...

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- Windows 2000 debut
- NASA releases NEAR asteroid images

more...

Marketplace

- Loan Center - auto loans, mortgages, credit reports
- Yahoo! Bill Pay - free 3-month trial
- Yahoo! Autos - buy new and used cars

more...

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- Yahoo! Outloud - featuring Smash Mouth
- Y! Mobile - Yahoo! on your phone
- Play free Fantasy Auto Racing
- Y! Greetings - free greeting cards

more...

World Yahoo!s *Europe* : Denmark - France - Germany - Italy - Norway - Spain - Sweden - UK & Ireland
Pacific Rim : Asia - Australia & NZ - **China** - Chinese - HK - Japan - Korea - Singapore - Taiwan
Americas : Brazil - Canada - **Mexico** - Spanish

Yahoo! Get Local LA - NYC - SF Bay - Chicago - more...

Other Autos - Careers - Digital - Entertainment - **Greetings** - Health - **Invites** - Local Events - Net Events
Message Boards - Movies - Music - Real Estate - Small Business - Y! Internet Life - Yahooligans!

Yahoo! prefers VISA

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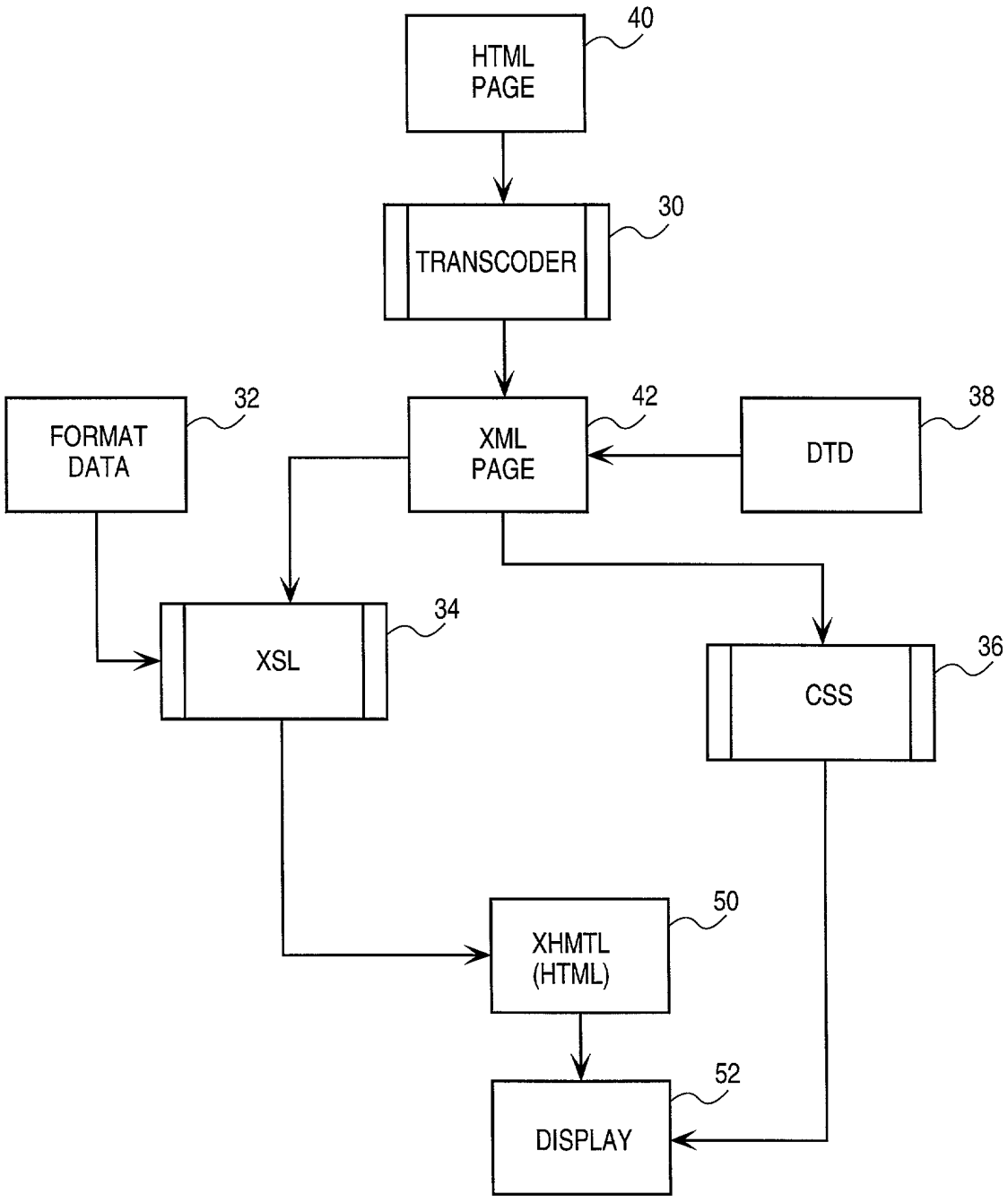

HTML PAGE
40
TRANSCODER
30
FORMAT DATA
32
XML PAGE
42
DTD
38
XSL
34
CSS
36
XHMTL (HTML)
50
DISPLAY
52

FIG. 3

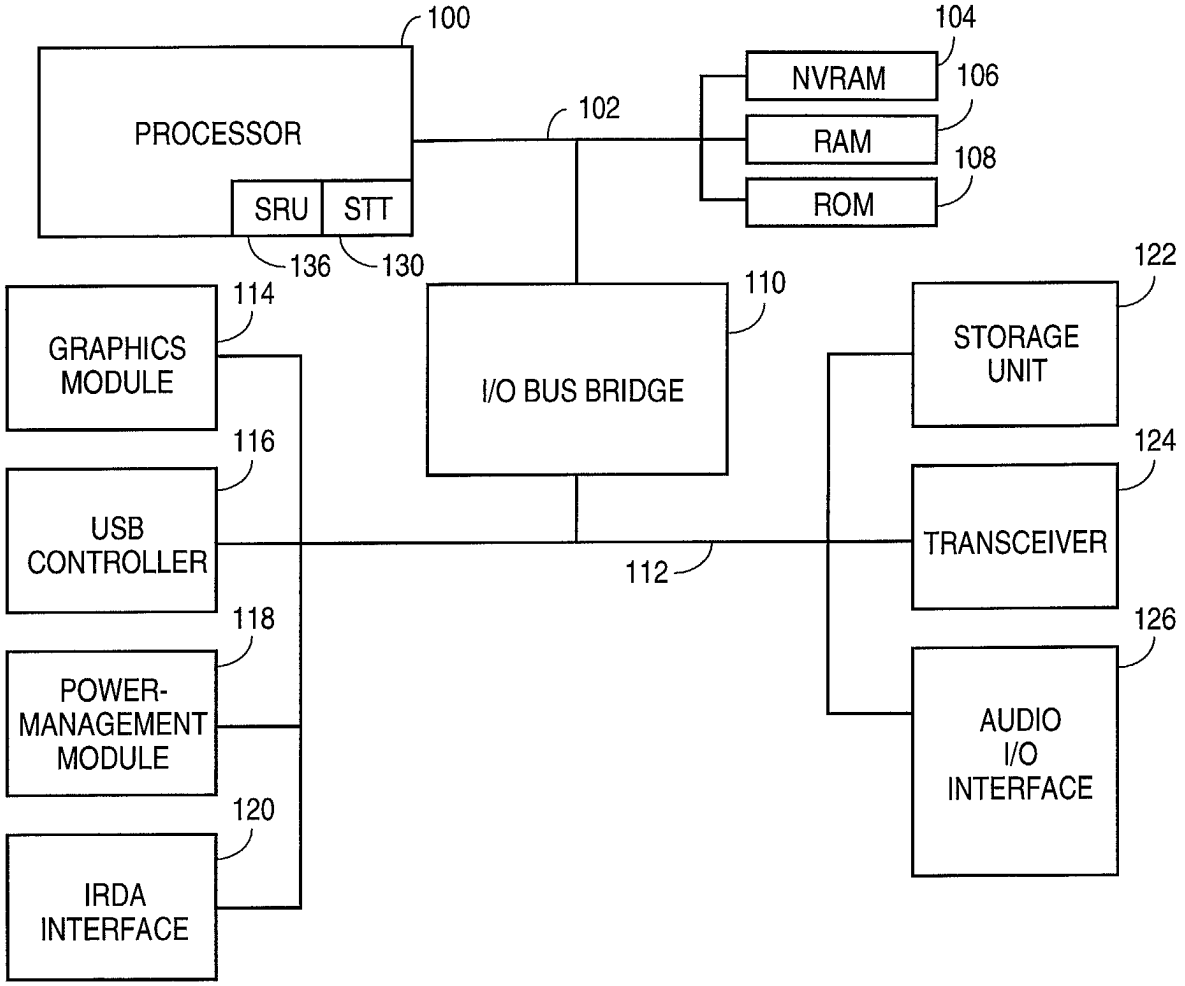


FIG. 4

09518015 .030300

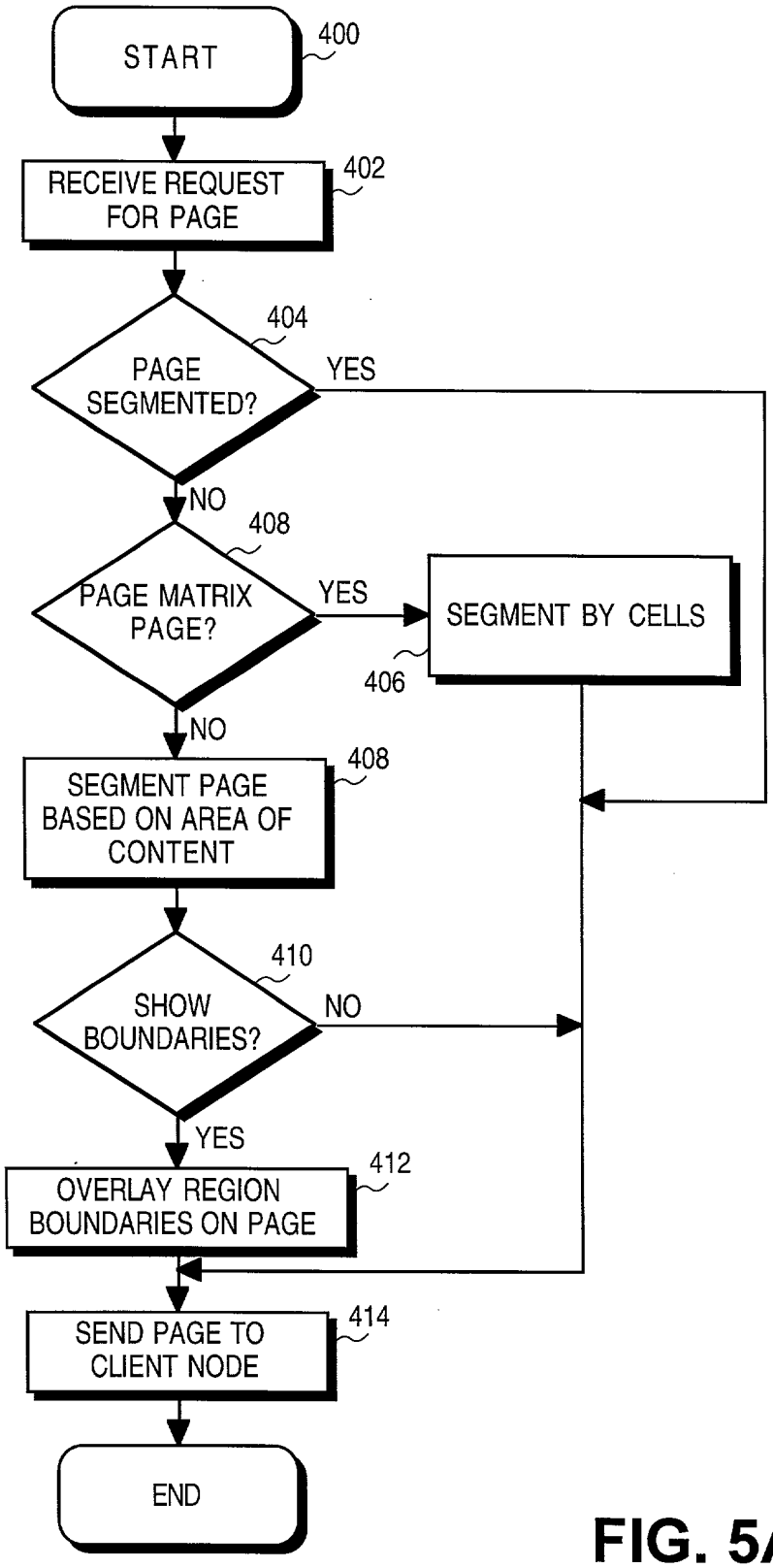

START
400
RECEIVE REQUEST FOR PAGE
402
PAGE SEGMENTED?
404
YES
NO
PAGE MATRIX PAGE?
408
YES
SEGMENT BY CELLS
406
NO
SEGMENT PAGE BASED ON AREA OF CONTENT
408
SHOW BOUNDARIES?
410
NO
YES
OVERLAY REGION BOUNDARIES ON PAGE
412
SEND PAGE TO CLIENT NODE
414
END

FIG. 5A

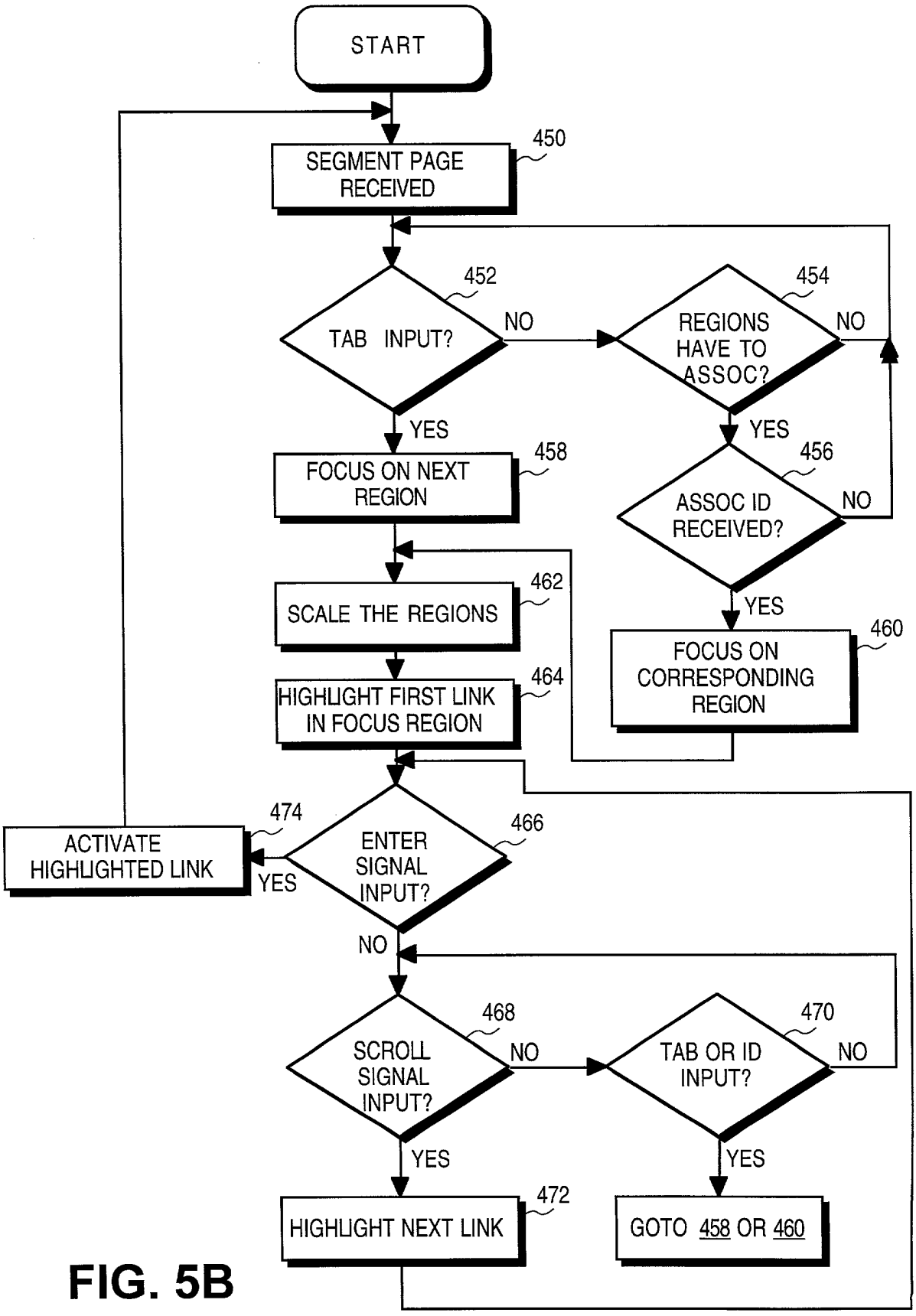

START
SEGMENT PAGE RECEIVED
450
TAB INPUT?
452
NO
REGIONS HAVE TO ASSOC?
454
NO
YES
YES
FOCUS ON NEXT REGION
458
ASSOC ID RECEIVED?
456
NO
SCALE THE REGIONS
462
YES
FOCUS ON CORRESPONDING REGION
460
HIGHLIGHT FIRST LINK IN FOCUS REGION
464
ACTIVATE HIGHLIGHTED LINK
474
ENTER SIGNAL INPUT?
466
YES
NO
SCROLL SIGNAL INPUT?
468
NO
TAB OR ID INPUT?
470
NO
YES
YES
HIGHLIGHT NEXT LINK
472
GOTO 458 OR 460

FIG. 5B

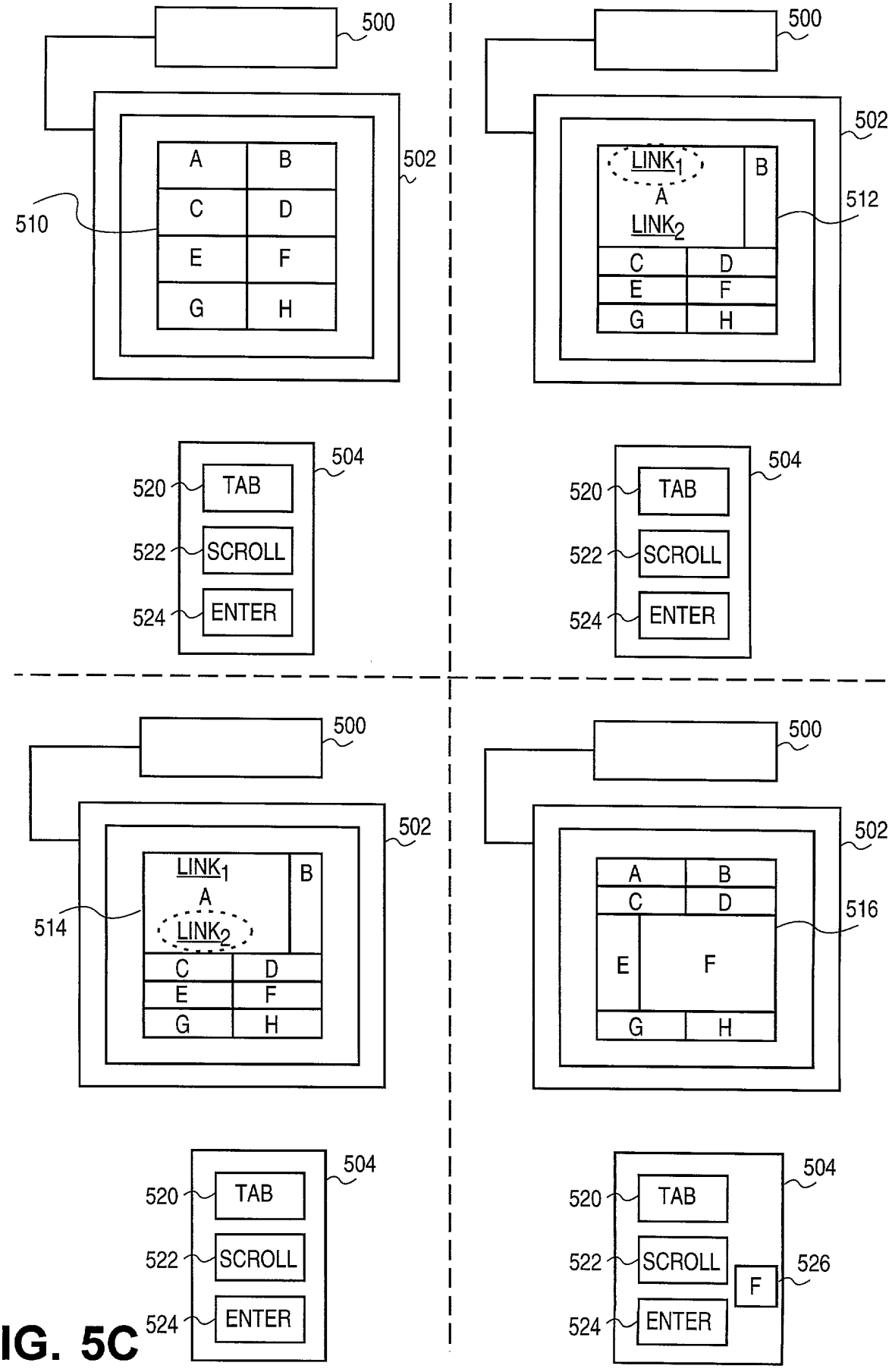

500
502
A
B
C
D
E
F
G
H
510
504
520
TAB
522
SCROLL
524
ENTER
LINK1
LINK2
512
514
516
526

FIG. 5C

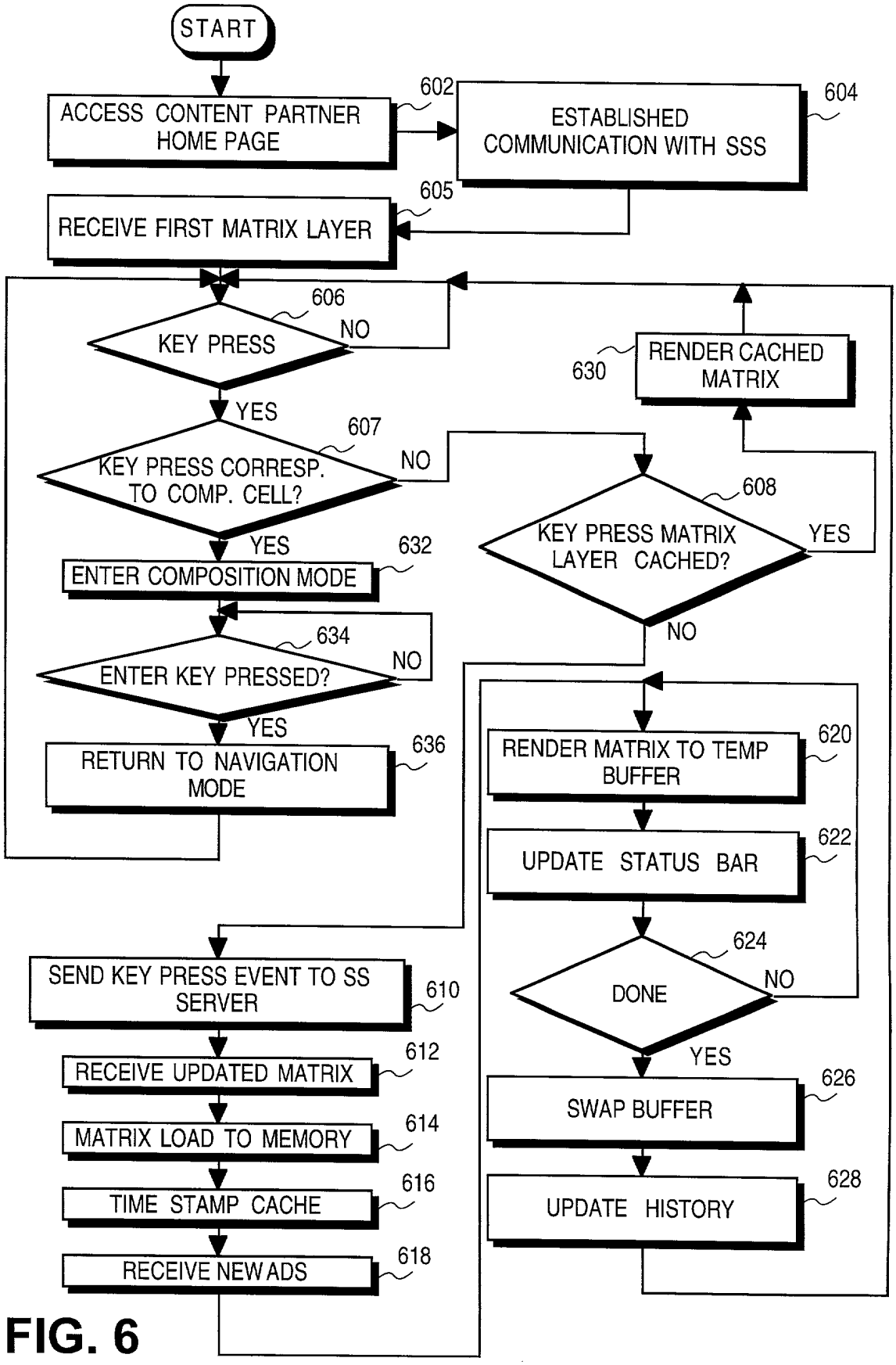

START
ACCESS CONTENT PARTNER HOME PAGE
602
ESTABLISHED COMMUNICATION WITH SSS
604
RECEIVE FIRST MATRIX LAYER
605
606
KEY PRESS
NO
YES
607
KEY PRESS CORRESP. TO COMP. CELL?
NO
YES
632
ENTER COMPOSITION MODE
634
ENTER KEY PRESSED?
NO
YES
636
RETURN TO NAVIGATION MODE
630
RENDER CACHED MATRIX
608
KEY PRESS MATRIX LAYER CACHED?
YES
NO
620
RENDER MATRIX TO TEMP BUFFER
622
UPDATE STATUS BAR
624
DONE
NO
YES
626
SWAP BUFFER
628
UPDATE HISTORY
610
SEND KEY PRESS EVENT TO SS SERVER
612
RECEIVE UPDATED MATRIX
614
MATRIX LOAD TO MEMORY
616
TIME STAMP CACHE
618
RECEIVE NEW ADS

FIG. 6

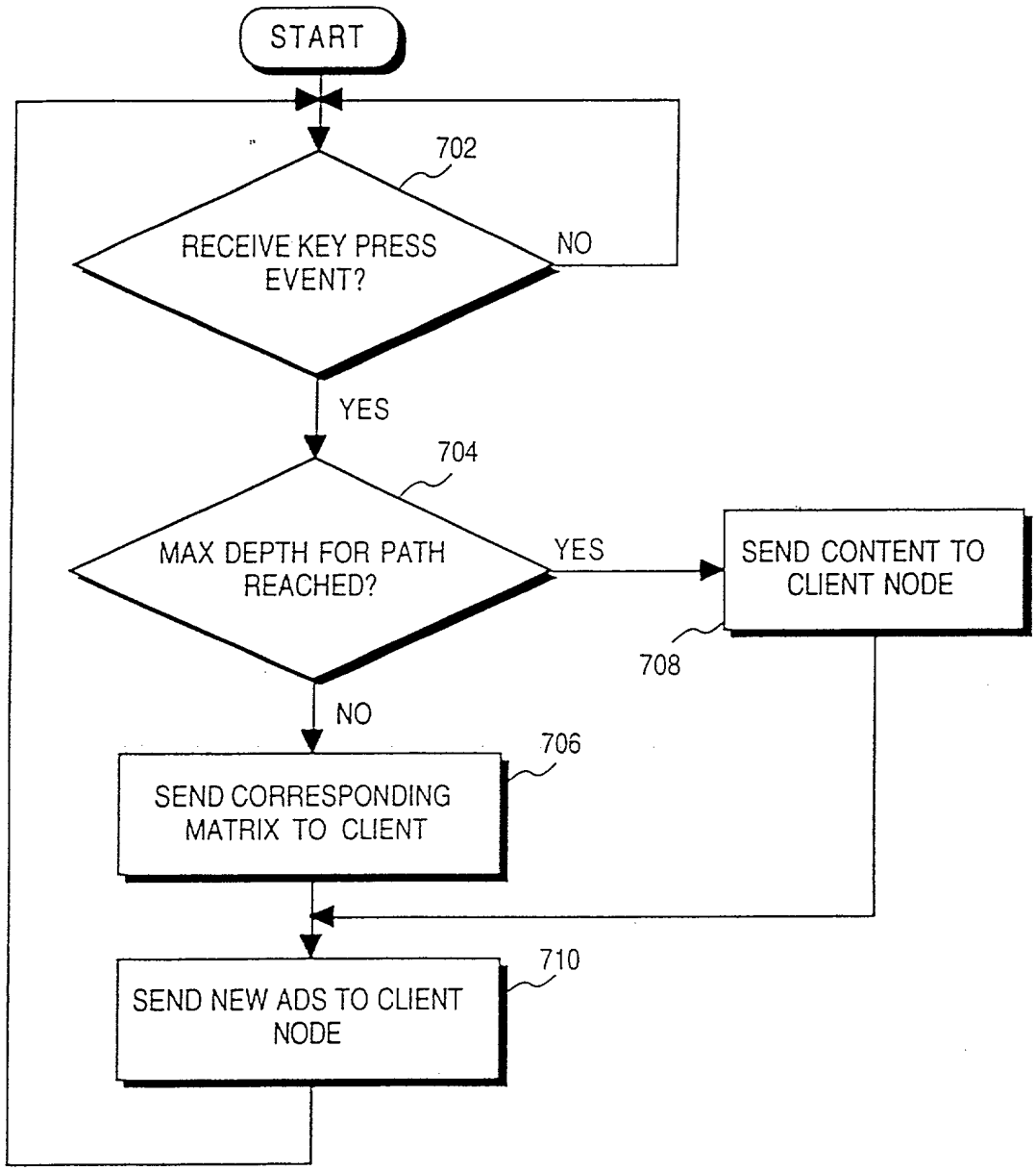

START
702
RECEIVE KEY PRESS EVENT?
NO
YES
704
MAX DEPTH FOR PATH REACHED?
YES
SEND CONTENT TO CLIENT NODE
708
NO
706
SEND CORRESPONDING MATRIX TO CLIENT
710
SEND NEW ADS TO CLIENT NODE

FIG. 7

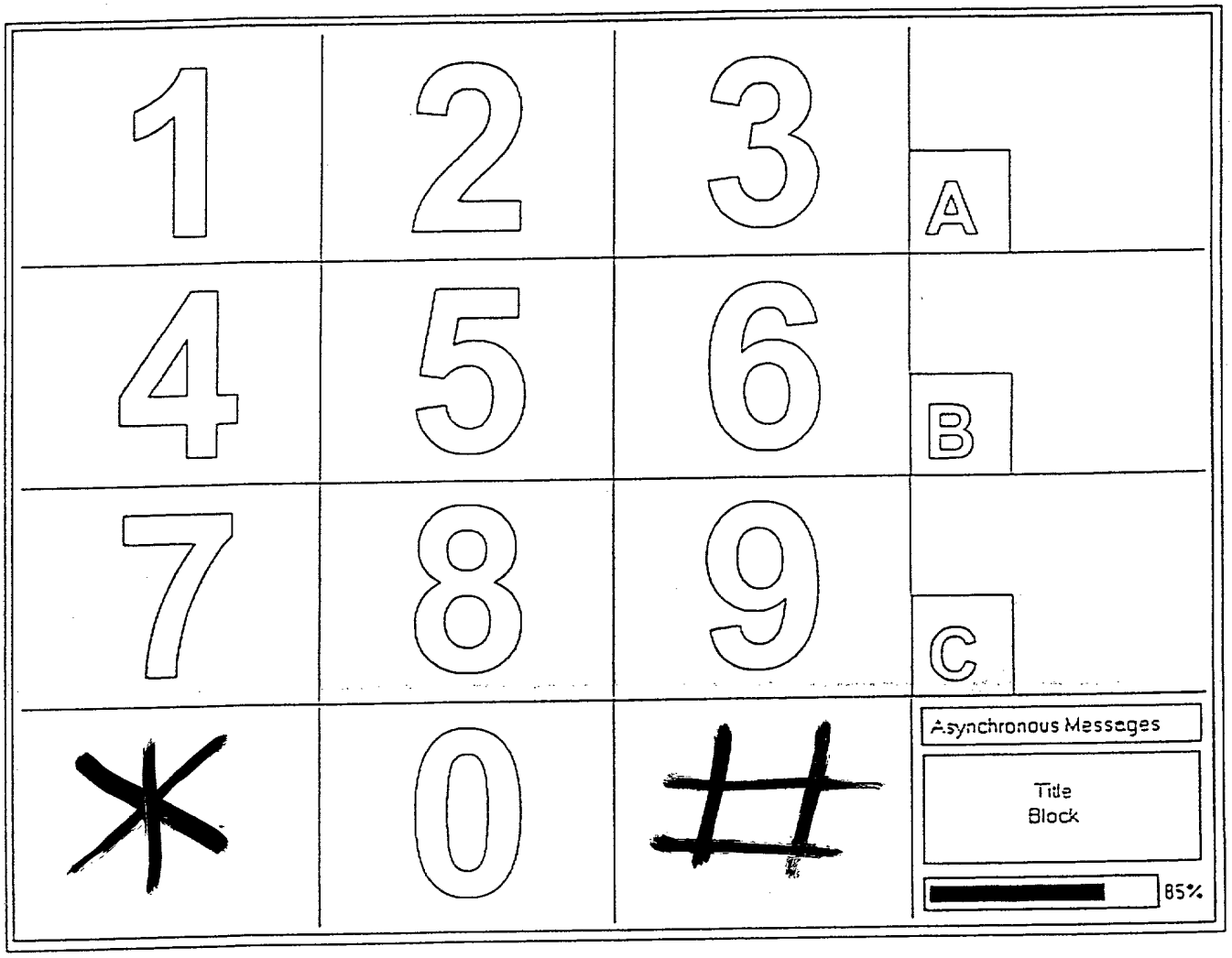


FIG 8

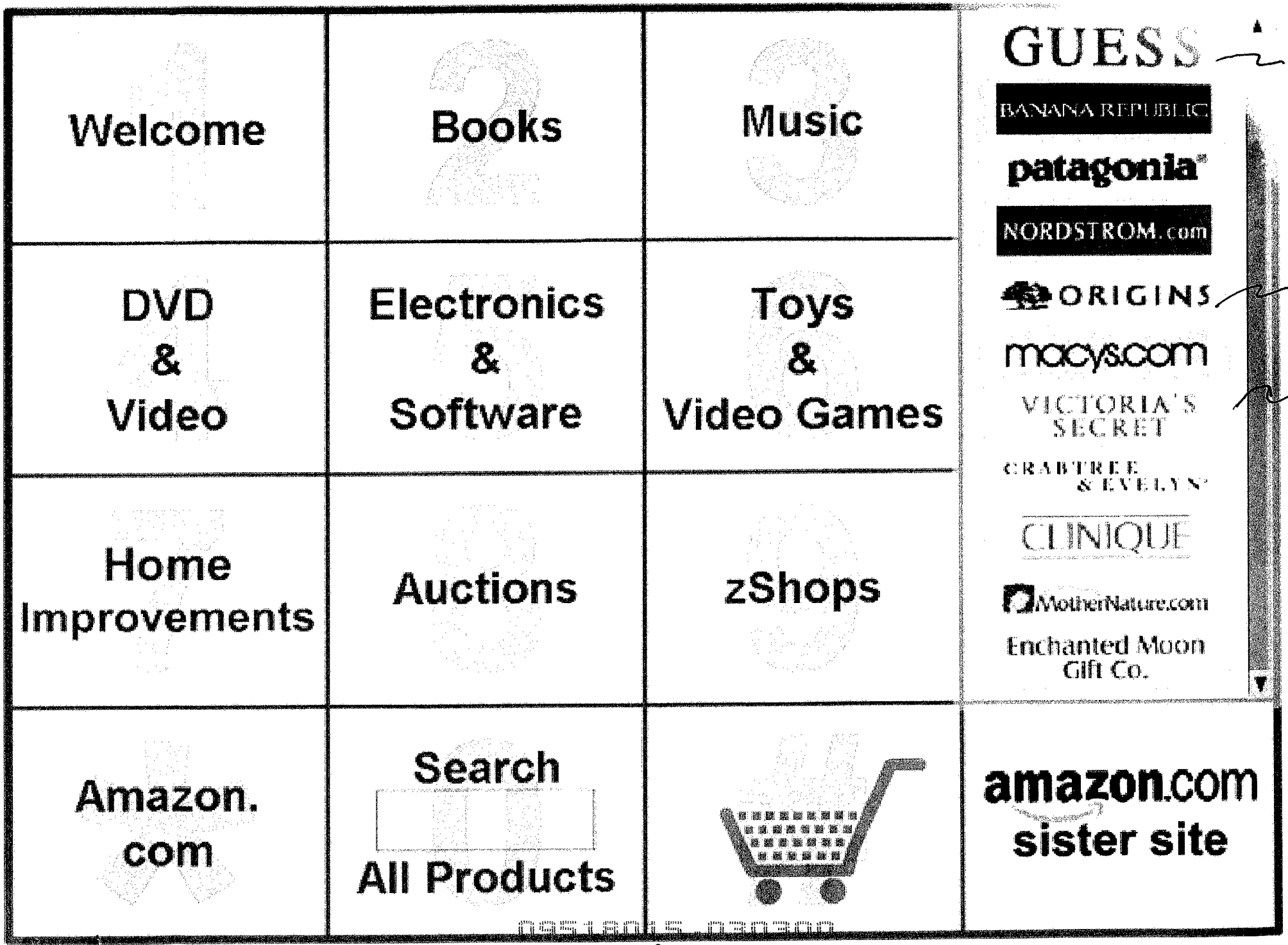

Welcome
Books
Music
GUESS
902
BANANA REPUBLIC
patagonia
NORDSTROM.com
DVD & Video
Electronics & Software
Toys & Video Games
ORIGINS
904
macys.com
900
VICTORIA'S SECRET
CRABTREE & EVELYN
CLINIQUE
Home Improvements
Auctions
zShops
MotherNature.com
Enchanted Moon Gift Co.
Amazon. com
Search
All Products
amazon.com
sister site

FIG 9a


Welcome
Books
Music
GUESS
902
DVD & Video
Electronics & Software
Toys & Video Games
BANANA REPUBLIC
900
patagonia
Home Improvements
Auctions
zShops
NORDSTROM.com
Amazon. com
Search
All Products
amazon.com sister site

FIG 9b

09518015 . 030300

FIG 9C

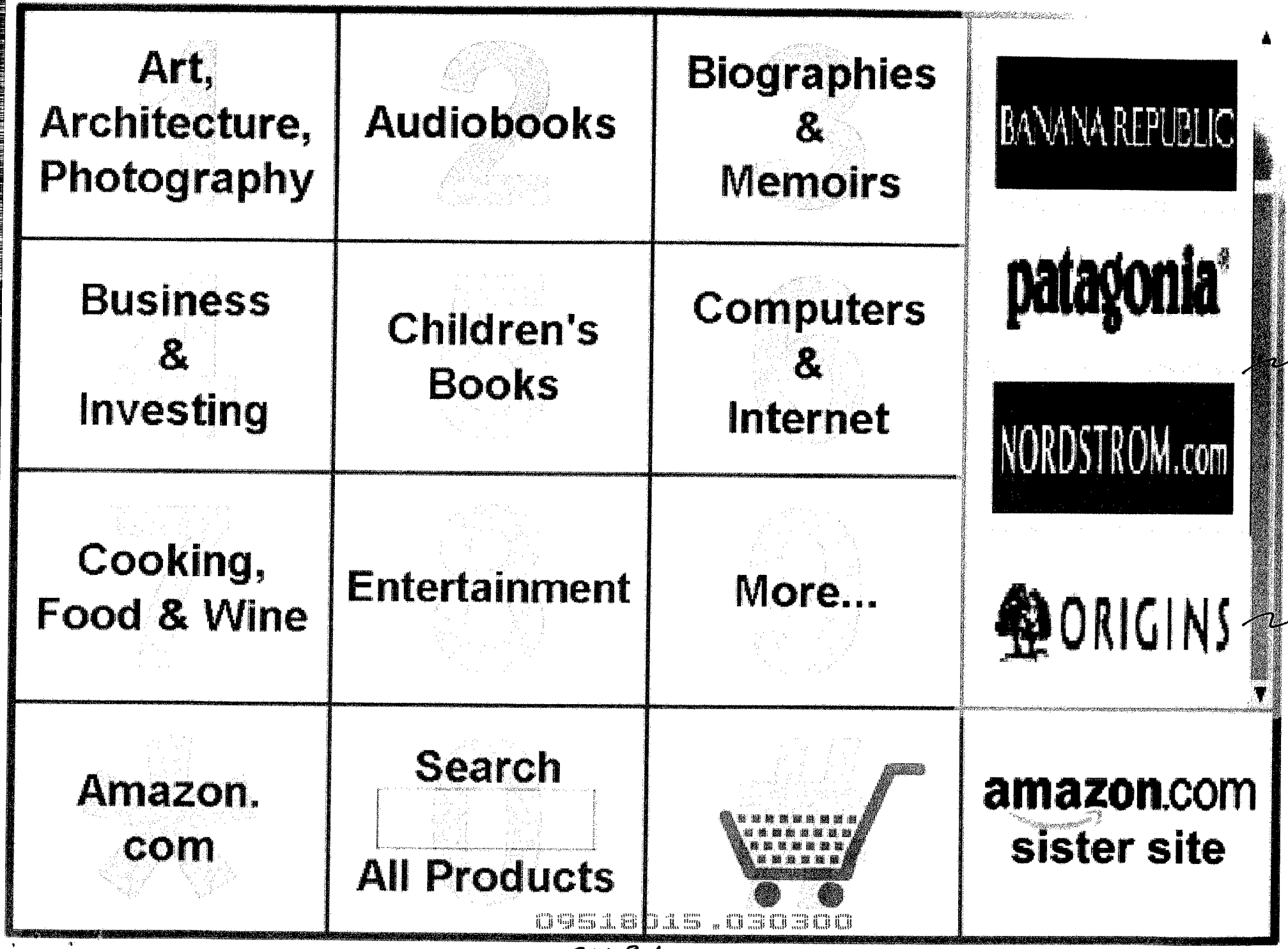
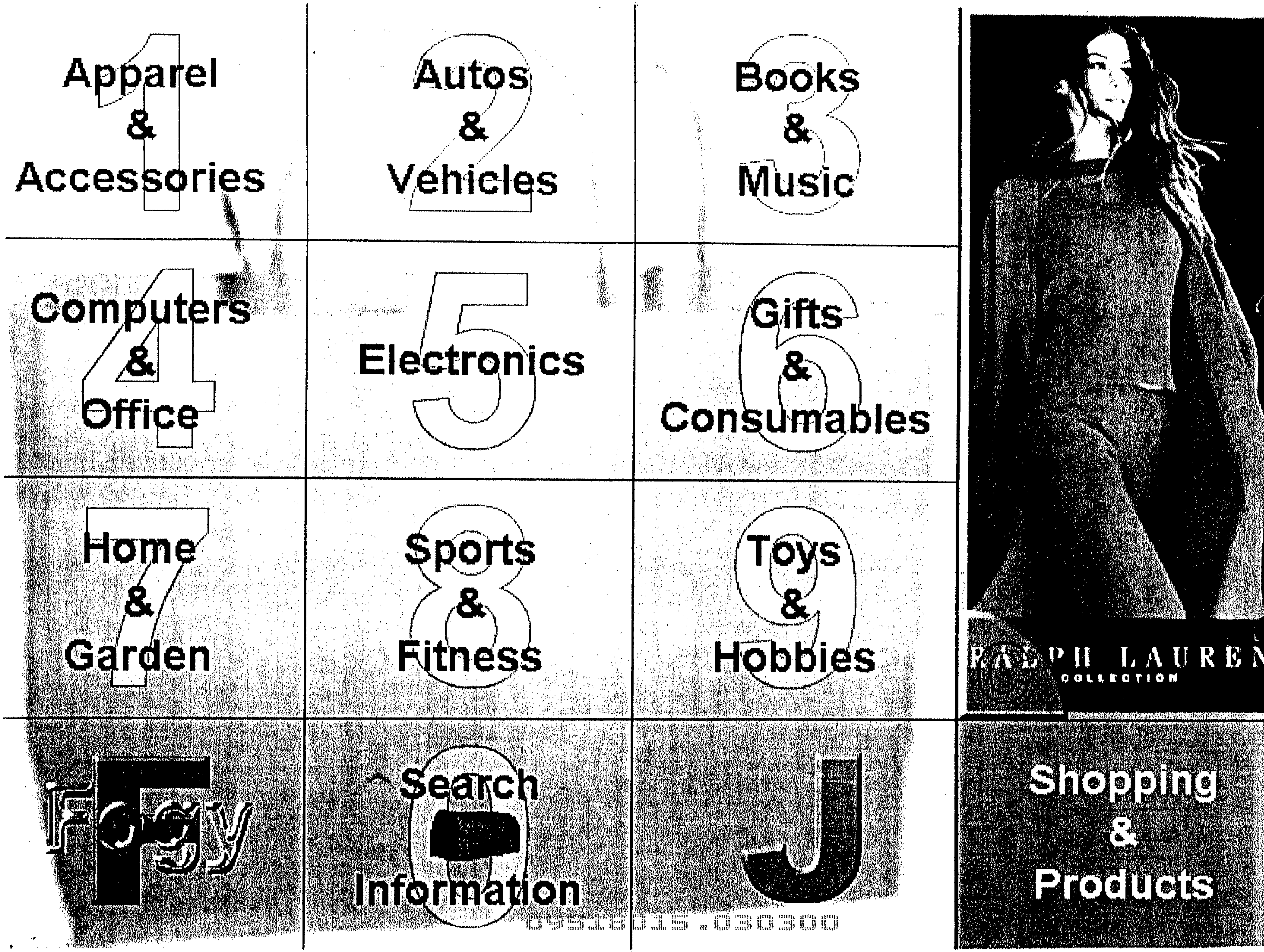

Art, Architecture, Photography
Audiobooks
Biographies & Memoirs
Business & Investing
Children's Books
Computers & Internet
Cooking, Food & Wine
Entertainment
More...
Amazon.com
Search
All Products
BANANA REPUBLIC
patagonia
NORDSTROM.com
ORIGINS
amazon.com sister site
900
904

FIG 9d

Fig. 10a



09516015.030300

Fig. 10b

1 Audio	2 Televisions	3 Video	
4 Cameras	5 Computers	6 Office	
7 Communica - tions	8 Accessories	9 PDA's	
Ipod	Search Information	J	Electronics

Fig. 10c

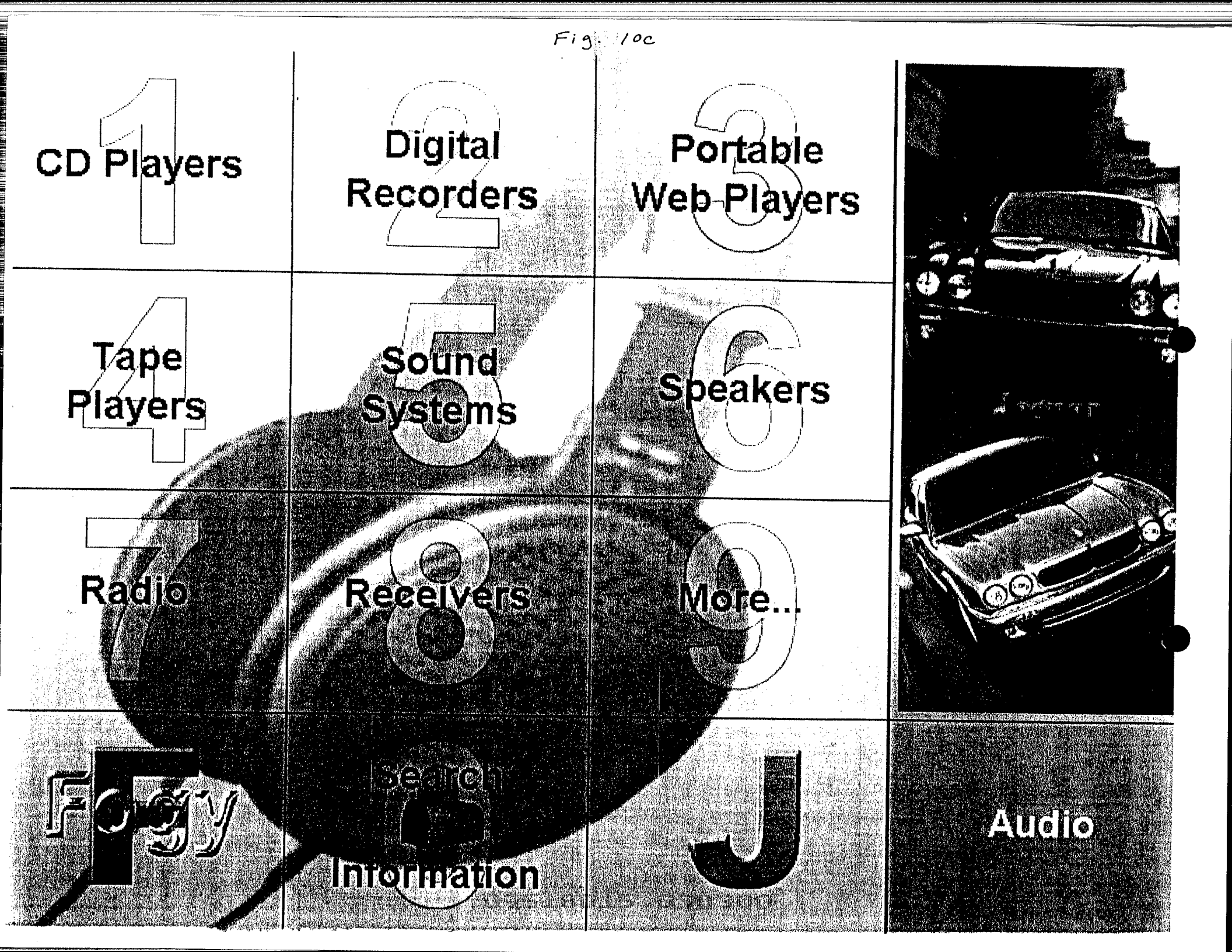
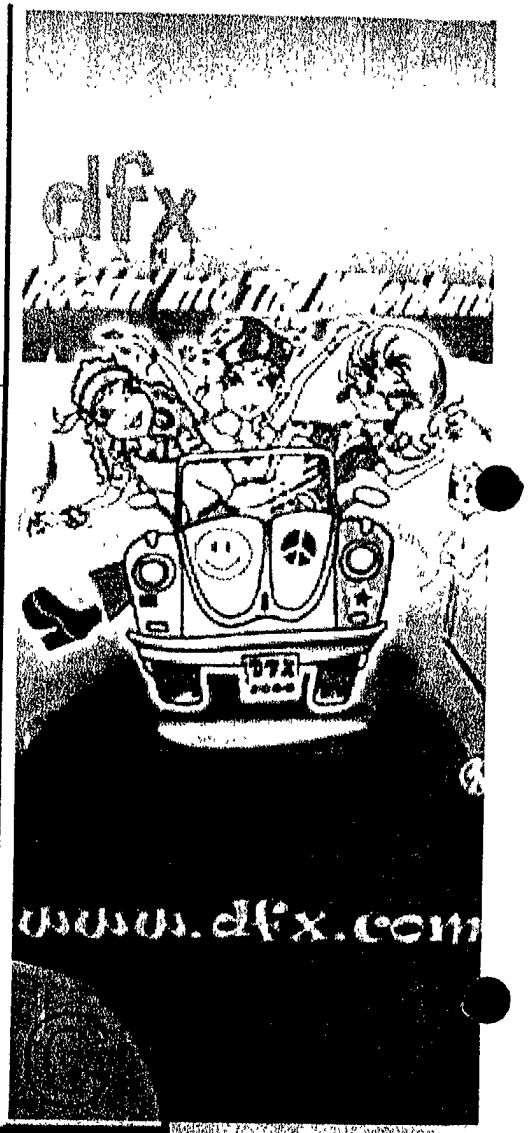
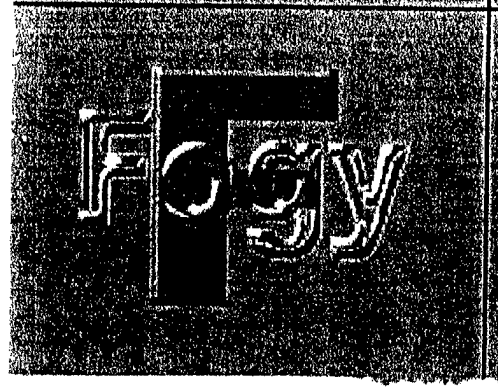
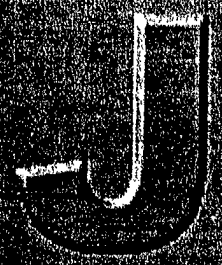

CD Players
Digital Recorders
Portable Web Players
Tape Players
Sound Systems
Speakers
Radio
Receivers
More...
Search
Information
Audio

Fig. 10d

1 Stereo Only $150 - $290	2 Pro-Logic $180 - $390	3 Surround $680 - $ 800	
4 CR Industry Report			





Receivers

Fig. 10e

Technics
SA-EX 110
$150
1
Rank #1
Consumer Reports

Sony
STR DE 310
$180
2
Rank #2
Consumer Reports

JVC
RX 318BK
$160
3
Rank #3
Consumer Reports

Onkyo
TX 8511B
$290
4
Rank #4
Consumer Reports

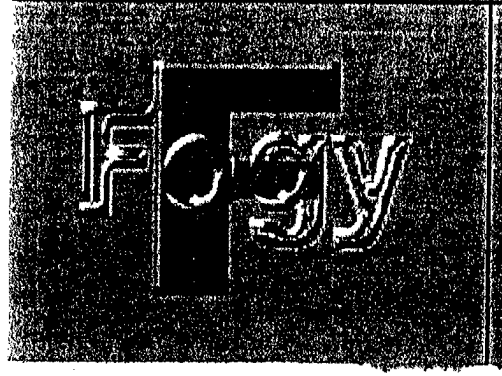
Pioneer
SX 255R
$160
5
Rank #5
Consumer Reports

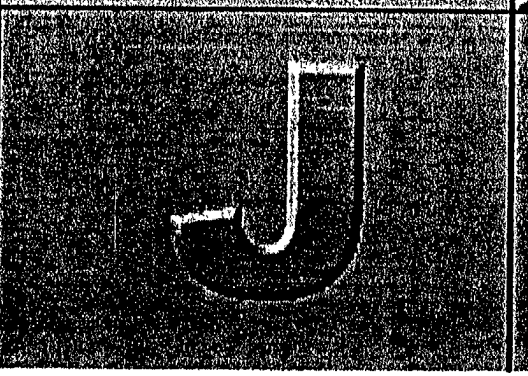
Kenwood
104 AR
$170
6
Rank #6
Consumer Reports

7

8

9





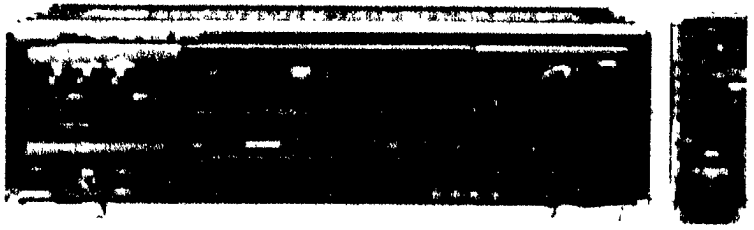
Stereo Only

Fig 1of

Technics
SA-EX110

~~$150~~

Our Price: $129



Rank #1
Consumer Reports

3 Features

6 Specifications

7 Consumer Report

8 Similar Products

9 PURCHASE

Search Information

J

Technics

Fig. 109

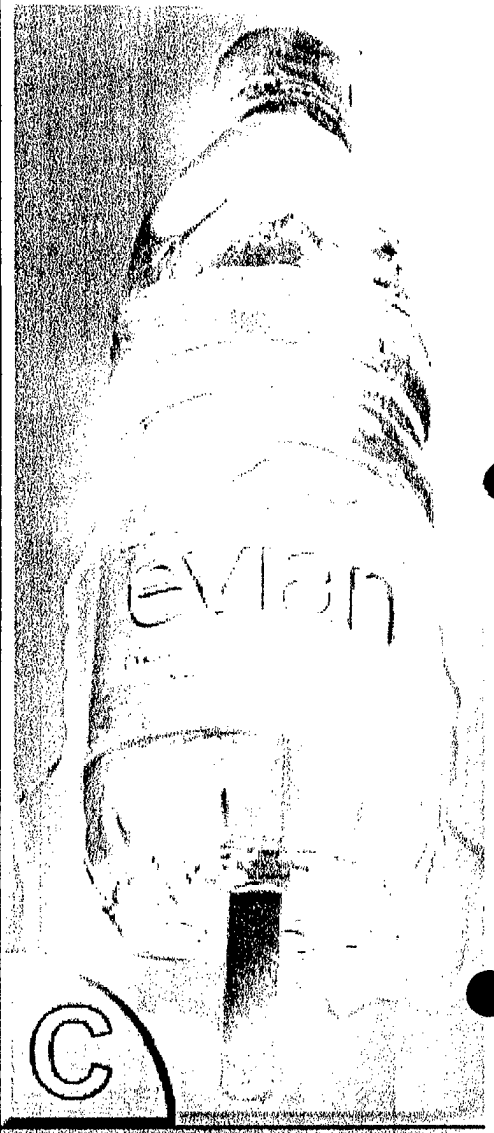
1 Credit Card Type:	2 Credit Card Number:	3 Expiration Date:	
4 Name:	5 Street Address:	6 City, State, Zip:	
7 Ship to Different Address	8 Clear All Forms	9 Next	
F6	Search Information	J	Technics PURCHASE

Fig. 11

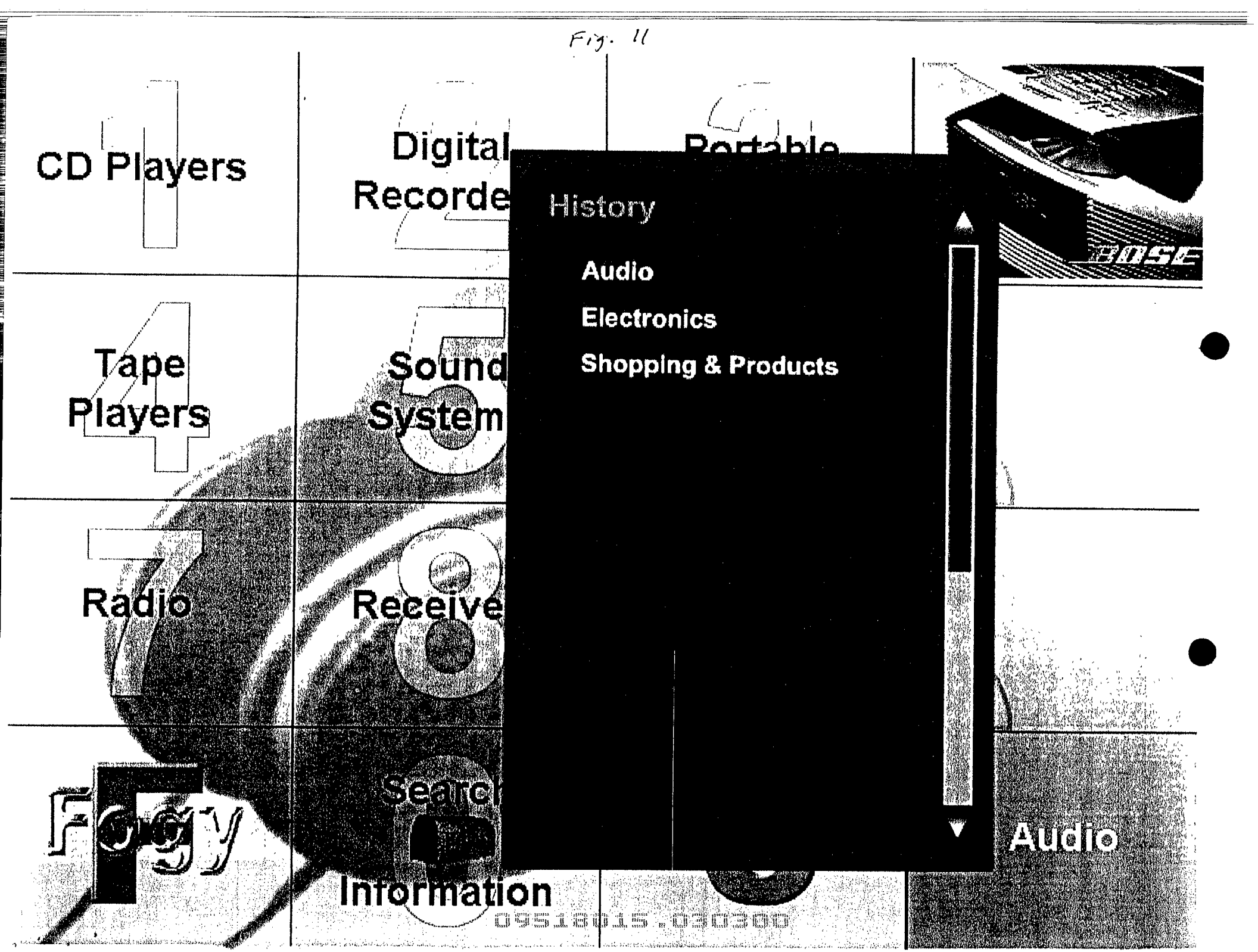

CD Players
Digital Recorde
Portable
Tape Players
Sound System
Radio
Receive
Searc
Information
History
Audio
Electronics
Shopping & Products
Audio
BOSE
09518015.030300

Fig. 12a

1 Search

3 Email

4 Promotions

5 Bookmarks Listings

6 Connection Settings

7 Preferences

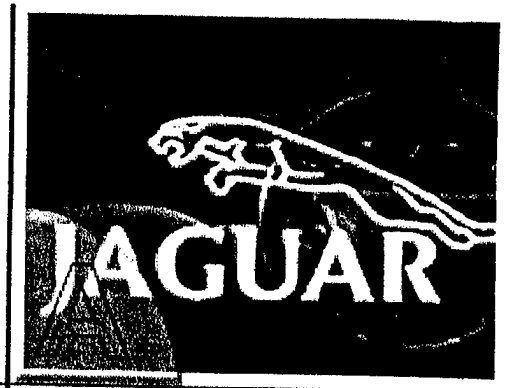
8 About

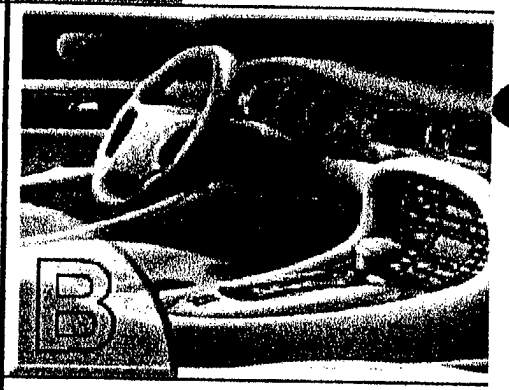
9 Help

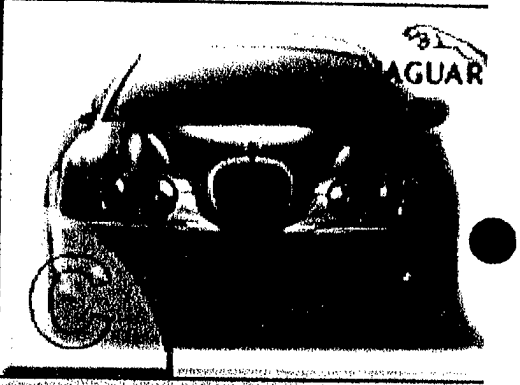
F

My Information

J







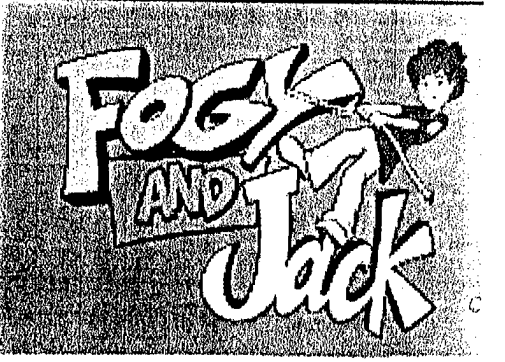
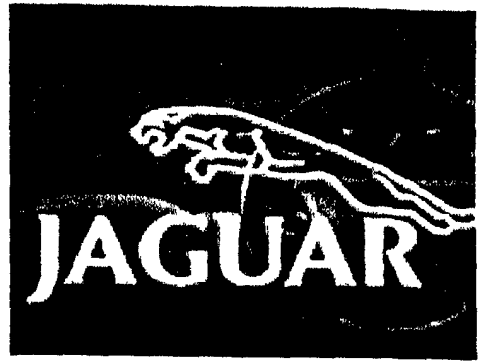


Fig. 12b

1 Search

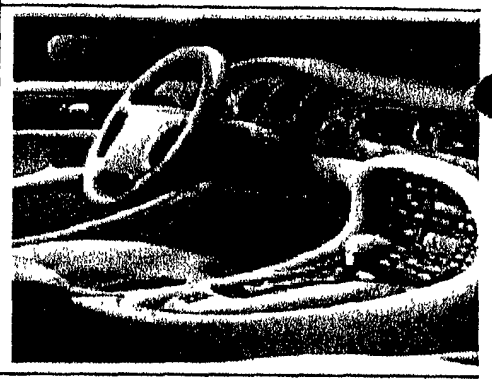
3 Email



4 Promotions

5 Bookmarks Listings

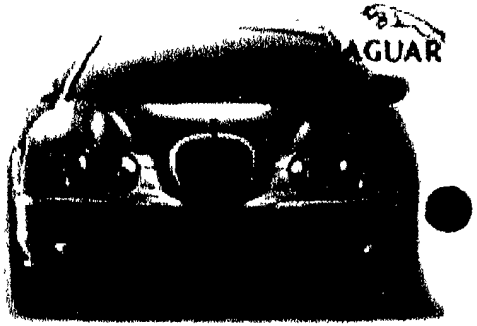
6 Connection Settings



7 Preferences

8 About

9 Help



F

My Information

J

Fig. 13

1 From: jack@fogyjack.com

2 To: user@fogyjack.com

3 Subject: Welcome!

4 Welcome new Fogy and Jack user!

5 Send 6 Save 7 Cancel

Inbox

A

Outbox

B

Sent

C

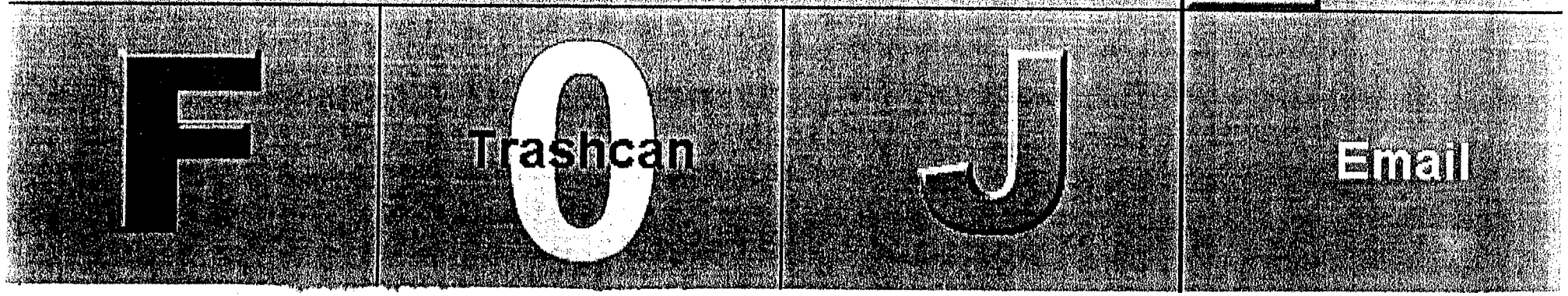
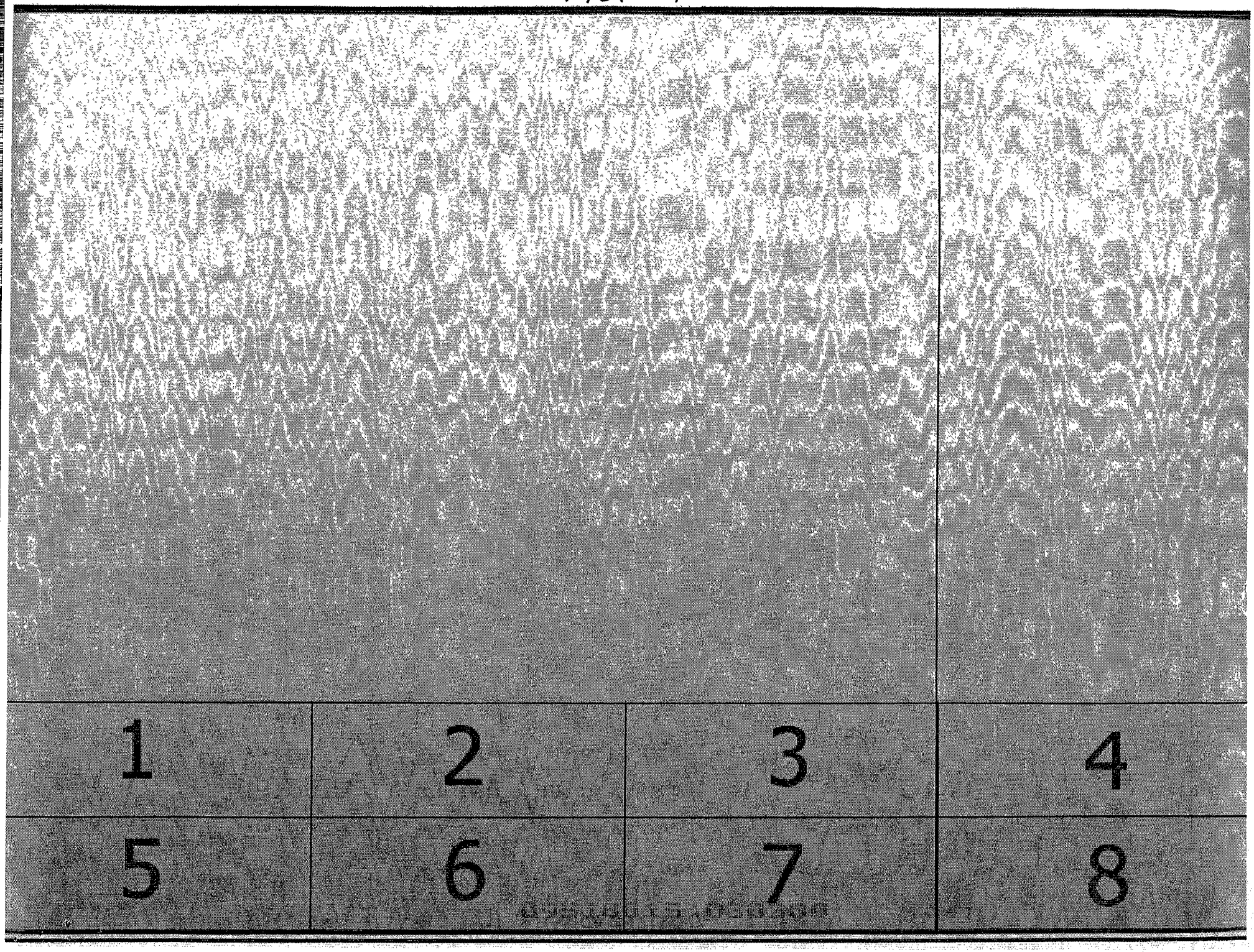


FIG. 14



Attorney's Docket No.: 004346.P001X

DECLARATION AND POWER OF ATTORNEY FOR PATENT APPLICATION

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below, next to my name.

I believe I am the original, first, and sole inventor (if only one name is listed below) or any original, first, and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

AN APPARATUS AND METHOD FOR SIMPLE WIDE-AREA NETWORK NAVIGATION

the specification of which
- [X] is attached hereto.
- [ ] was filed on _____ as
  United States Application Number _____
  or PCT International Application Number _____
  and was amended on _____ (if applicable).

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claim(s), as amended by any amendment referred to above. I do not know and do not believe that the claimed invention was ever known or used in the United States of America before my invention thereof, or patented or described in any printed publication in any country before my invention thereof or more than one year prior to this application, that the same was not in public use or on sale in the United States of America more than one year prior to this application, and that the invention has not been patented or made the subject of an inventor's certificate issued before the date of this application in any country foreign to the United States of America on an application filed by me or my legal representatives or assigns more than twelve months (for a utility patent application) or six months (for a design patent application) prior to this application.

I acknowledge the duty to disclose all information known to me to be material to patentability as defined in Title 37, Code of Federal Regulations, Section 1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, Section 119(a)-(d), of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

Prior Foreign Application(s):

APPLICATION NUMBER	COUNTRY (OR INDICATE IF PCT)	DATE OF FILING (day, **month**, year)	PRIORITY CLAIMED
			☐ No ☐ Yes
			☐ No ☐ Yes
			☐ No ☐ Yes

I hereby claim the benefit under Title 35, United States Code, Section 119(e) of any United States provisional application(s) listed below:

APPLICATION NUMBER	FILING DATE

I hereby claim the benefit under Title 35, United States Code, Section 120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, Section 112, I acknowledge the duty to disclose all information known to me to be material to patentability as defined in Title 37, Code of Federal Regulations, Section 1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application:

APPLICATION NUMBER	FILING DATE	STATUS (ISSUED, PENDING, ABANDONED)

I hereby appoint BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN, a firm including: William E. Alford, Reg. No. 37,764; Farzad E. Amini, Reg. No. 42,261; Amy M. Armstrong, Reg. No. 42,265; Aloysius T. C. AuYeung, Reg. No. 35,432; William Thomas Babbitt, Reg. No. 39,591; Carol F. Barry, Reg. No. 41,600; Jordan Michael Becker, Reg. No. 39,602; Bradley J. Bereznak, Reg. No. 33,474; Michael A. Bernadicou, Reg. No. 35,934; Roger W. Blakely, Jr., Reg. No. 25,831; Gregory D. Caldwell, Reg. No. 39,926; Ronald C. Card, Reg. No. 44,587; Thomas M. Coester, Reg. No. 39,637; Michael Anthony DeSanctis, Reg. No. 39,957; Daniel M. De Vos, Reg. No. 37,813; Robert Andrew Diehl, Reg. No. 40,992; Matthew C. Fagan, Reg. No. 37,542; Tarek N. Fahmi, Reg. No. 41,402; Paramita Ghosh, Reg. No. 42,806; James Y. Go, Reg. No. 40,621; James A. Henry, Reg. No. 41,064; Willmore F. Holbrow III, Reg. No. 41,845; Sheryl Sue Holloway, Reg. No. 37,850; George W Hoover II, Reg. No. 32,992; Eric S. Hyman, Reg. No. 30,139; William W. Kidd, Reg. No. 31,772; Sang Hui Kim, Reg. No. 40,450; Eric T. King, Reg. No. 44,188; Erica W. Kuo, Reg. No. 42,775; Michael J. Mallie, Reg. No. 36,591; Paul A. Mendonsa, Reg. No. 42,879; Darren J. Milliken, Reg. No. 42,004; Chun M. Ng, Reg. No. 36878; Thien T. Nguyen, Reg. No. 43,835; Thinh V. Nguyen, Reg. No. 42,034; Dennis A. Nicholls, Reg. No. 42,036; Lisa A. Norris, Reg. No. 44,976; Daniel E. Ovanezian, Reg. No. 41,236; William F. Ryann, Reg. No. 44,313; James H. Salter, Reg. No. 35,668; William W. Schaal, Reg. No. 39,018; James C. Scheller, Reg. No. 31,195; Jeffrey S. Smith, Reg. No. 39,377; Maria McCormack Sobrino, Reg. No. 31,639; Stanley W. Sokoloff, Reg. No. 25,128; Judith A. Szepesi, Reg. No. 39,393; Vincent P. Tassinari, Reg. No. 42,179; Edwin H. Taylor, Reg. No. 25,129; George G. C. Tseng, Reg. No. 41,355; Joseph A. Twarowski, Reg. No. 42,191; Lester J. Vincent, Reg. No. 31,460; Glenn E. Von Tersch, Reg. No. 41,364; John Patrick Ward, Reg. No. 40,216; Charles T. J. Weigell, Reg. No. 43,398; James M. Wu, Reg. No. 45,241; Steven D. Yates, Reg. No. 42,242; and Norman Zafman, Reg. No. 26,250; my attorneys; and Andrew C. Chen, Reg. No. 43,544; Justin M. Dillon, Reg. No. 42,486; and John F. Travis, Reg. No. 43,203; my patent agents, with offices located at 12400 Wilshire Boulevard, 7th Floor, Los Angeles, California 90025, telephone (310) 207-3800, with full power of substitution and revocation, to prosecute this application and to transact all business in the Patent and Trademark Office connected herewith.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

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Inventor's Signature _____ Date 03/03/00

Residence Pacific Palisades, California (City, State) Citizenship U.S. (Country)

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Full Name of Third/Joint Inventor (given name, family name) **Albert-Michel C. Long**

Inventor's Signature _____ Date 3/3/00

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Irvine, California 92614 U.S.

Full Name of Fourth/Joint Inventor (given name, family name) _____

Inventor's Signature _____ Date _____

Residence _____ (City, State) Citizenship _____ (Country)

P. O. Address _____

_____

Full Name of Fifth/Joint Inventor (given name, family name) _____

Inventor's Signature _____ Date _____

Residence _____ (City, State) Citizenship _____ (Country)

P. O. Address _____

_____